FEASIBILITY STUDY

INTERSTATE NORTH CAROLINA 74

From Union Valley Road (SR1585) in Whiteville To the South Carolina State Line

Brunswick and Columbus Counties

Divisions 3 and 6

R-3436 RE-EVALUATION

Prepared For:

N.C. Department of Transportation

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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TABLE OF CONTENTS

I. General Description 3

II. Need for Project 3

III. Adjacent Projects 4

IV. Studied Alternatives 5

Section 1 6

Section 2 7
Section 2 Alternative A 7
Section 2 Alternative B 7

Section 3 8
Section 3 Alternative A 8
Section 3 Alternative B 8

Section 4 10

Section 4 Alternative A 11
Section 4 Alternative B 12
Section 4 Alternative C 13
Section 4 Alternative D 14
Section 4 Alternative E 15

Section 5 16
Section 5 Alternative A 16
Section 5 Alternative B 16

Section 6 17

V. Traffic Operations 19

VI. Recommendations 20

Section Data Table 20

Alignment Combinations Table. 20

VII. Additional Comments 23

VIII. Figures
Project Study Map
Sheets 1 to 4 – Study Alternatives Maps

APPENDIX A
Strategic Highway Corridors - Vision Plan for NC
Strategic Highway Corridors - Vision Plan for Southeastern NC

APPENDIX B
Letters from Interested Parties

From Union Valley Road (SR 1585) in Whiteville To the South Carolina State Line

Brunswick and Columbus Counties
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R-3436 RE-EVALUATION

I. General Description

This feasibility study addresses additional alignment alternatives for the proposed Interstate 74 from Union Valley Road (SR 1585) in Whiteville, Columbus County to the South Carolina state line in Brunswick County. The Project Study Map, included in **Part VIII Figures** in the back of this report, displays an overview of the project's location. The study corridor begins west of the US 74-76 interchange with US 701 in Whiteville and continues along existing US 74-76 to 1.25 miles west of Bolton. It proceeds southward on new location to the Columbus/Brunswick county line. The study corridor travels southward alongside existing NC 211 from the county line to US 17 in Supply. The I-74 corridor then turns southwest and travels along the US 17 corridor, utilizing the Shallotte Bypass, and finally terminating at the South Carolina state line. This study proposes a four-lane divided interstate freeway with full control of access including a variable median from 46 to 70 feet, 12-foot travel lanes, 10-foot full depth outside and 4-foot full depth inside paved shoulders, interchanges, grade separations and service roads within a minimum state maintained right-of-way of 350 feet. Sheets 1 – 4 are detailed maps of the study alternatives. The total length of the project varies from 63.3 miles to 65.5 miles, depending on which alignments are selected. See **Part IV Studied Alternatives** for a detailed description of studied alternatives within each section including lengths.

This study is the initial step in the planning and design process for this project and is not the product of exhaustive environmental or design investigations. The purpose of this study is to describe the proposed project, including costs, and to identify potential problems that may require consideration in the planning and design phases.

II. Need for Project

The I-74 corridor, as studied in this report and supported by the Governor of North Carolina, has been identified as a Strategic Highway Corridor (SHC) in the Statewide Transportation Plan adopted by the Board of Transportation on September 2, 2004. Many transportation needs can be satisfied through this study's potential alignment of I-74, including the completion of a vital section of the proposed I-74 interstate from Michigan to South Carolina, as well as the achievement of an important milestone in the Governor's and the North Carolina Department of Transportation's (NCDOT) goals for southeastern North Carolina. The NCDOT developed the SHC policy in partnership with the Office of the Governor, the North Carolina Department of Commerce and the North Carolina Department of Environment and Natural Resources. This particular corridor can be seen on the Vision Plan for Southeastern NC. A copy of the Vision Plan of Southeastern NC can be found in **Appendix A** in the back of this report. The regional goal of the Governor's plan is to provide an economic boost for the area with this new interstate (I-74) in conjunction with other projects such

as interstate I-20 and the extension of the Wilmington Outer Loop. The addition of the proposed I-74 interstate in southeastern North Carolina will be an excellent upgrade to North Carolina's transportation infrastructure and should improve safety and efficiency as well as ignite long-term economic growth in this area of our state. In addition, as stated in the NCDOT's SHC policy, "these corridors are critical to statewide mobility and connectivity and promote a vision of modern, efficient transportation supportive of economic opportunities and environmental excellence." More information about the SHC policy and the Statewide Transportation Plan can be found on www.ncdot.org/planning/tpb/SHC/, the NCDOT Transportation Planning Branch website.

III. Adjacent Projects

The North Carolina Department of Transportation (NCDOT) in coordination with the South Carolina Department of Transportation (SCDOT) is currently developing a feasibility study to extend the multi-lane Carolina Bays Parkway (CBP) facility (future I-74) from SC 9 in Horry County, South Carolina to NC 904 near US 17 in Brunswick County, North Carolina. The study overlaps this I-74 study from the South Carolina state line to NC 904 and is scheduled for completion by the end of this year. The CBP study had identified six alternative corridors. Based upon input gathered during a North Carolina public information meeting earlier this year, NCDOT decided to expand the study area and examine additional corridors. At least two additional corridors are to be evaluated within the North Carolina study area, one north of Brunswick Plantation and one in the southern portion of the study area. The Brunswick Plantation community is located at the US 17/Hickman Road (SR 1303) intersection. More information can be found on www.ncdot.org/planning/tpb/SHC/CS/Studies/CBP/, the NCDOT Transportation Planning Branch website, as well as the South Carolina Department of Transportation's website, http://www.dot.state.sc.us/Projects/CarolinaBays/default.shtml. This I-74 study will include costs for proposed improvements from NC 904 to the South Carolina state line. The total project cost for the R-3436 Reevaluation study will be revised to reflect the CBP feasibility study findings upon its completion. Coordination with the CBP study should be maintained through subsequent phases of this project. Contact the NCDOT Transportation Planning Branch for information on the Carolina Bays Parkway project.

The NCDOT has also initiated a study to develop and coordinate a plan of innovative alternatives to protect the integrity of and maintain mobility along the US 17 Strategic Highway Corridor in Brunswick County (R-4732). The study includes a segment of US 17 that this I-74 corridor study also includes from Supply, NC to the South Carolina state line. Coordination has taken place regarding interchange and service road locations on the freeway alternative of the R-4732 study. The R-4732 study freeway alternative is similar to this study's Section 4 and Section 5-Alternative A. The first phase of the R-4732 corridor study and an Existing Conditions Report were completed in April 2004. The second phase of developing alternatives and an Alternatives Report is nearing completion. Two citizens' informational workshops and a transportation summit were held to receive input from and provide information to the public. More detailed information of these meetings, including copies of reports, handouts, and maps may be found on the NCDOT Transportation Planning Branch website, www.ncdot.org/planning/tpb/SHC/CS/Studies/17/. A final report with completed functional designs of detailed study alternatives is scheduled for completion in the fall of 2005. Coordination with the R-4732 corridor study should be maintained throughout the phases of this project. Contact the Congestion Management group of the NCDOT Traffic Engineering & Safety Systems Branch for information on the R-4732 project.

The NCDOT has a project (R-4462) listed in the current Transportation Improvement Program (TIP) to upgrade to interstate standards approximately 40 miles of the US 74-76 facility in Columbus and Brunswick Counties. The project begins in Whiteville and extends to the proposed Wilmington Bypass. R-4462 is currently listed as post years and is unfunded. This project overlaps approximately 19.2 miles of the I-74 study from Whiteville to Bolton. Existing US 74-76 is Full Control of Access from Chadbourn to just east of Whiteville and Limited Control of Access from there eastward. Items needed to upgrade the eastern portion to interstate standards include improved paved shoulders, median protection such as cable guiderail, and removing at-grade intersections. This study includes improvements needed to upgrade US 74-76 to interstate standards from Whiteville to just west of Bolton. Coordination with this project should continue through subsequent phases of R-4462. Improvements to existing US 74-76 (Section 1) can be excluded in future phases if construction of R-4462 occurs prior to this project.

There are several additional adjacent projects listed in the TIP within the vicinity of the study corridors. Although these projects are near the study corridor, this study's proposed improvements are not directly affected by these projects. In Columbus County, Division 6, TIP project R-0061C proposes constructing an interchange at the US 74-76 intersection with NC 211 in Bolton. Planning and design for this project is in progress and construction is future year 2010. This study's corridors bypass Bolton to the southwest and do not likely affect the need for this interchange. However, coordination between R-0061C and R-3436 Reevaluation should be maintained to optimize interchange spacing in the area. In Brunswick County, Division 3, there are several TIP projects within the vicinity of the study: R-3432, U-3462, U-3463, U-3473, B-4438, and B-4440. The U-3462 project proposes realigning SR 1357 (Smith Avenue)/NC 130 to eliminate offset intersections. Planning and design for this project is in progress and construction is future year 2008. With this project there is the potential rerouting of NC 130 to Smith Avenue through Shallotte. The potential rerouting of NC 130 should be considered during future planning and design phases of R-3436 in order to optimize the interchange location and spacing along the Shallotte Bypass.

IV. Studied Alternatives

This Feasibility Study evaluates several functional alternatives for the I-74 corridor. As described previously, the studied route generally takes I-74 east along existing US-74-76 from Whiteville to west of Bolton, then south along NC 211 to Supply, and finally southwest along US 17 and the Shallotte Bypass to the South Carolina state line. The study area is primarily rural along existing US 74-76 and NC 211 with much of the land currently designated as farmland, pine plantation, or swampland. The study area is more developed along NC 211 and US 17 from Supply to the SC state line with many businesses and residences located closely along these existing roadways. All existing roadways to be upgraded and designated I-74 are currently posted 55 mph with the exception of US 74-76 from Whiteville to east of Red Hill Road (SR 1700). The facility is posted 70 mph from Union Valley Road (SR 1585) to US 701 and is posted 60 mph from US 701 to east of Red Hill Road (SR 1700). Existing US 74-76 is a four-lane divided highway with part full control and part limited control of access, a varying median width (approximately 46 to 70 feet), and paved shoulders not currently up to interstate standards. Existing NC 211 is a two-lane two-way roadway with substandard lane and shoulder widths within a state maintained right-of-way of 60 to 150 feet. Existing US 17 is also a four-lane median divided highway with no control of access

(Shallotte Bypass has limited access) along the majority of the study corridor, an approximate 60-foot median, and paved shoulders not currently up to interstate standards.

This study identifies probable impacts to properties within the proposed right-of-way of the various functional alternatives. The studied corridors also attempt to minimize the impacts to wetlands. Impacts will be identified and evaluated in greater detail in subsequent planning and design stages. Design criteria for the functional alternatives are based on NCDOT and American Association of State Highway and Transportation Officials (AASHTO) design standards for interstate freeways. The proposed typical for all alternatives is a four-lane divided interstate freeway with full control of access including a variable median from 46 to 70 feet, 12-foot travel lanes, 10-foot full depth outside and 4-foot full depth inside paved shoulders, interchanges, grade separations and service roads within a minimum state maintained right-of-way of 350 feet. As a rule, minimum interchange spacing for interstates should be one mile in urban areas and three miles in rural areas. In urban areas, spacing of less than one mile may be acceptable with collector-distributor roads. This study includes preliminary recommendations for interchange, grade separation and service road locations. Unless otherwise specified, all proposed interchanges refer to diamond interchanges that will allow for future loop construction. For the purpose of this report, the project has been divided into six sections. There is only one alignment considered in Sections 1 and 6. There are several alternatives and alignments considered in Sections 2, 3, 4 and 5. Refer to the Project Study Map and Sheets 1 – 4, included in **Part VIII Figures** in the back of this report, for Alternative and Section locations as well as proposed mainline typical sections. The following describes each of the project sections and alternatives and the proposed improvements associated with each.

Section 1

Section 1 begins at Union Valley Road (SR 1585) in Whiteville and continues east along existing US 74-76 to 1.25 miles west of NC 211 in Bolton. The total length of Section 1 is 19.2 miles. Existing US 74-76 is a full control of access facility from the beginning of the section to the Red Hill Road (SR 1700) interchange east of Whiteville. The posted speed limit along this portion of US 74-76 varies from 60 to 70 mph. The existing paved shoulders are 4 feet wide. The remainder of the section to Bolton is limited control of access. The existing posted speed limit along US 74-76 in this area is 55 mph. The existing paved shoulders vary from 2 to 4 feet wide. The NCDOT paved shoulder policy requires 4-foot median paved shoulders and 10-foot outside paved shoulders on interstate facilities. The existing median through the section varies from 46 to 200 feet wide. Median widths of 70 feet or less require median guiderail. Proposed work in Section 1 consists of improving the roadway to a full control of access facility meeting all interstate standards, including installing median protection where needed, widening paved shoulders to interstate standards, and changing existing at-grade intersections as described below.

There are three existing at-grade intersections along US 74-76 in Section 1: Hallsboro Road (SR 1001), Chauncey Town Road (SR 1735), and Old Lake Road (SR 1740). AASHTO standards recommend 3-mile minimum interchange spacing in rural areas. There is sufficient spacing at these locations with the exception of between Chauncey Town Road (SR 1735) and Old Lake Road (SR 1740) in Lake Waccamaw. It is recommended to convert one of these two intersections to a grade separation because of the inadequate spacing between the two routes. There are adequate alternative routes connecting the two locations; i.e. NC 214, which parallels US 74-76. In addition,

one interchange can sufficiently handle the projected 2030 traffic volumes of both the Chauncey Town Road (SR 1735) and Old Lake Road (SR 1740) intersections. According to Division 6 staff, Chauncey Town Road (SR 1735) is the main access road to the Town of Lake Waccamaw and is the preferred route for local residents (see **Appendix B**). This study recommends proposed interchanges at Hallsboro Road (SR 1001) and Chauncey Town Road (SR 1735) and a grade separation at Old Lake Road (SR 1740). The proposed alignment of the grade separation at Old Lake Road (SR 1740) is east of the existing roadway to minimize impacts to East Columbus High School located in the northwest quadrant of the crossroads. Sheets 1 and 2 included in **Part VIII Figures** show proposed interchange and grade separation locations and proposed typical sections for Section 1. The existing right-of-way width, which varies from 150 to 350 feet through this section, will accommodate the paved shoulder and median improvements. Varying amounts of proposed right-of-way are needed to accommodate the at-grade intersection improvements. The majority of proposed work will occur within existing right-of-way areas and additional impacts are expected to be low in this section.

Section 1 improvements also include installation of a pair of truck weigh stations and a pair of rest areas. AASHTO recommends having rest areas at intervals of approximately one hour of driving time. An ideal site for these rest areas would be on US 74-76 near Lake Waccamaw. This location has water and sewer utilities available, and would be approximately one hour from the next nearest developed areas of Supply and Shallotte, along US 17. The weigh stations should be located somewhere along US 74-76 near Whiteville at the recommendation of the NCDOT feasibility study right-of-way and construction estimators. The construction and right-of-way costs associated with installing of a pair of truck weigh stations and a pair of rest areas has been included in the Section 1 costs below.

It is anticipated that **Section 1** improvements will require the relocation of two (2) residences and no (0) businesses. The total cost, including construction and right-of-way, is estimated to be $ 95,000,000.

	Highway	Weigh Station	Rest Area	Section Cost
Construction……	$ 65,000,000	$ 12,000,000	$ 8,000,000	$ 85,000,000
Right-of-way……	$ 2,900,000	$ 3,900,000	$ 3,200,000	$ 10,000,000
Subtotal ……..	$ 67,900,000	$ 15,900,000	$ 11,200,000	$ 95,000,000

Section 2

Section 2 begins 1.25 miles west of NC 211 in Bolton and continues southeast to the Columbus/Brunswick County line near NC 211 on new location. There are two alternatives considered in Section 2: Alternative A and Alternative B. The total length of Alternative A is 10.2 miles and the length of Alternative B is 10.3 miles. Alternatives A and B both depart the existing US 74-76 roadway on new location just west of Bolton at a proposed trumpet interchange. Both alternatives continue southeast with grade separations at NC 214 and Tram Road (SR 1706) and an interchange at NC 211. Approximately 2 miles north of the county line, Alternative B turns easterly, bypassing the Honey Island community and crosses the county line 2.4 miles east of existing NC 211. Alternative A crosses the county line 1.6 miles east of NC 211. All proposed crossroads on Alternatives A and B are bridged over the interstate with the exception of NC 214 in Bolton. Less impact on existing development will result from the two interstate alternatives crossing over NC 214. Land use

throughout Section 2 is mostly pine plantation and other agricultural farmlands. Although the alternatives traverse wetlands, tree farming has previously disturbed the majority of the areas. The alternatives also avoid undisturbed natural areas of the Friar Swamp near Bolton. The impact to utilities is expected to be low in this section. Sheet 2, included in **Part VIII Figures**, shows interchange and grade separation locations and proposed typical sections for Section 2.

Section 2-Alternative A

It is anticipated that **Section 2-Alternative A** improvements will require the relocation of four (4) residences and no (0) businesses. The total cost, including construction and right-of-way, is estimated to be $ 100,900,000.

Construction…….$ 97,000,000
Right-of-way……..$ 3,900,000
Total Cost (Sec. 2-Alt. A)…….$ 100,900,000

Section 2-Alternative B

It is anticipated that **Section 2-Alternative B** improvements will require the relocation of four (4) residences and no (0) businesses. The total cost, including construction and right-of-way, is estimated to be $ 102,800,000.

Construction…….$ 99,000,000
Right-of-way……..$ 3,800,000
Total Cost (Sec. 2-Alt. A)…….$ 102,800,000

Section 3

Section 3 begins at the Columbus/Brunswick County line near NC 211, proceeds southward along the existing NC 211 corridor and ends 1.1 miles north of Little Macedonia Road (SR 1343) on NC 211 in Middle River, Brunswick County. There are two alternatives considered in Section 3. Alternative A has a total length of 11.5 miles and Alternative B has a total length of 11.3 miles. Both Alternatives A and B cross Honey Island Swamp, Exum Road (SR 1340), Bear Pen Island Swamp, go around the Green Swamp Preserve and cross Old C.C. Road.

Outside of the Green Swamp Preserve, the majority of land through Section 3 is used for tree farming and other agricultural uses. Both Section 3 alternatives travel around the western boundary of the Green Swamp Preserve (see Sheet 3, **Part VIII Figures**). Aligning the interstate along the NC 211 corridor would have a detrimental impact to the Green Swamp. The Nature Conservancy (TNC) owns, maintains and protects the Green Swamp Preserve. As discussed in a meeting with TNC, NCDOT and TNC agreed that the endangered species habitat was a compelling reason to align the roadway along the western boundary of the preserve (see **Appendix B** letter from TNC). Species found in the Preserve include the red-cockaded woodpecker, the rough-leaf loosestrife, pine savanna, and the venus flytrap. The following table displays the State and Federal Status of these rare species:

Green Swamp Preserve Species Status					
Group	**Common Name**	**State Status**	**Federal Status**	**State Rank**	**Global Rank**
Bird	Red-cockaded Woodpecker	Endangered	Endangered	Imperiled	Very Rare
Vascular Plant	Rough-leaf Loosestrife	Endangered	Endangered	Rare or Uncommon	Very Rare
Vascular Plant	Venus Flytrap	Significantly Rare, Special Concern	Federal Species of Concern	Rare or Uncommon	Very Rare
Natural Community	Pine Savanna	-	-	Imperiled to Rare or Uncommon	Very Rare

The above information was taken from the N.C. Department of Environment and Natural Resources (DENR) Natural Heritage Program database. In addition to the rare species located within the preserve, the controlled burning of savanna necessary to maintain biodiversity in the preserve is less likely to affect the highway if it is located west of the preserve and existing NC 211 in Section 3.

The proposed interchange spacing along the NC 211 corridor (Sections 2 and 3) varies from 4.8 to 10 miles. The 10-mile interchange spacing may be considered undesirable but is acceptable based on land use and sparse population along this corridor. Breaks in the median cable guiderail will provide access for maintenance and emergency vehicles and NC 211 provides adequate access to and from the interstate. In addition, as TNC suggested at a meeting with NCDOT, not placing an interchange between Honey Island and Middle River may help protect the natural environment of the Green Swamp from undesired growth.

A proposed 350-foot right-of-way width on new location will accommodate the interstate and service roads. Portions of the alternatives that parallel NC 211 utilize the existing roadway as a parallel service road. These parts of the alternatives require approximately 220 feet of proposed right-of-way in combination with the existing NC 211 right-of-way. Sheets 2 and 3 included in **Part VIII Figures** show Section 3 interchange and grade separation locations and proposed typical sections.

Section 3-Alternative A

Section 3-Alternative A begins 1.6 miles east of existing NC 211 and proceeds in a southeast direction for 11.5 miles. 5.1 miles of this section are alongside NC 211 and 6.4 miles are on new location. The existing posted speed limit along NC 211 is 55 mph. The portion that parallels NC 211 uses the existing two-lane roadway as a service road and constructs the interstate to the east of NC 211. One horizontal curve on NC 211 in Section 3, located where Alternative A and B join, requires improvement to accommodate interstate speeds. A more detailed study is needed to determine exact locations of service roads on new location parts of the alternative. Section 3-Alternative A proposes bridging two crossings within the Honey Island Swamp, an interchange with Exum Road (SR 1340), bridging a crossing of the Bear Pen Island Swamp, a grade separation with relocated NC 211 and a grade separation with Old C.C. Road. All proposed crossroads are bridged over the interstate. This section alternative includes one diamond interchange, two grade separations, and three natural systems bridges. The impact to utilities is expected to be low in this section.

Alternative A will impact the Honey Island community and natural areas located in the Honey Island and Bear Pen Island Swamps. Although the area is sparsely populated, there are several residences and one church cemetery located near the NC 211/Exum Road (SR 1340) intersection. In addition, plant and animal Natural Heritage Element Occurrences (NHEO) can be found in the swamps as shown on Sheets 2 and 3, **Part VIII Figures** in the back of this report.

It is anticipated that **Section 3-Alternative A** improvements will require the relocation of six (6) residences and one (1) business. The total cost, including construction and right-of-way, is estimated to be $ 106,300,000.

Construction……..…$ 103,000,000
Right-of-way……..$ 3,300,000
Total Cost (Sec. 3-Alt. A)…….$ 106,300,000

Section 3-Alternative B

Section 3-Alternative B begins approximately 2.4 miles east of existing NC 211 and proceeds in a southeast direction for approximately 11.3 miles. Approximately 0.7 miles of this section are alongside NC 211 and 10.6 miles are on new location. A more detailed study is needed to determine exact locations of service roads on new location parts of the alternative. Section 3-Alternative B proposes bridging one crossing of the Honey Island Swamp, an interchange with an extension of Exum Road (SR 1340), bridging a crossing of the Bear Pen Island Swamp, a grade separation with relocated NC 211 and a grade separation with Old C.C. Road. Although Alternative B traverses a significant amount of wetlands in the northern part of the section, tree farming has previously disturbed most of these areas. This alternative bypasses the Honey Island community to the east and proposes a 1-mile connector from Exum Road (SR 1340) to an interchange with Alternative B. All proposed crossroads in the section are bridged over the interstate. NC 211 and Exum Road (SR 1340) provide local access to and from the interstate. Alternative B also has minimal impact to the Honey Island and Bear Pen Island Swamps. This section alternative includes one diamond interchange, two grade separations, and two natural systems bridges.

It is anticipated that **Section 3-Alternative B** improvements will require the relocation of no (0) residences and no (0) businesses. The total cost, including construction and right-of-way, is estimated to be $ 105,200,000.

Construction……..…$ 103,000,000
Right-of-way……..$ 2,200,000
Total Cost (Sec. 3-Alt. B)…….$ 105,200,000

Section 4

Section 4 begins approximately 1.1 miles north of Little Macedonia Road (SR 1343) on NC 211 in Middle River and ends at NC 904 southwest of Shallotte. There are five alternatives considered in Section 4 ranging in lengths from 15.5 to 17.7 miles. Four of the alternatives utilize the existing US 17 Shallotte Bypass. One alternative is completely on new location. Sheets 3 and 4 and the Project Study Map, included in **Part VIII Figures**, show these alternatives.

A proposed 350-foot right-of-way width will accommodate the interstate and service roads. Portions of the alternatives that parallel existing roadways require a combination of proposed and existing right-of-way. Parts of the alternatives that utilize the Shallotte Bypass will require no additional right-of-way for the mainline. Sheets 3 and 4, included in **Part VIII Figures**, show Section 4 interchange and grade separation locations and proposed typical sections. The following describes each of the five alternatives in Section 4.

Section 4-Alternative A

Section 4-Alternative A utilizes existing roadway corridors. It parallels NC 211 from Middle River to Supply, parallels US 17 from Supply to Shallotte, utilizes the existing Shallotte Bypass, and parallels US 17 to NC 904. The total length of this alternative is 17.7 miles; 3.0 miles alongside NC 211, 10.5 miles parallel to US 17, and 4.2 miles on existing Shallotte Bypass. The existing Shallotte Bypass is a limited access facility with one interchange and three at-grade intersections. The part of the alternative along the Shallotte Bypass uses the existing roadway and improves the facility to full control of access. The portion of the alternative that parallels NC 211 uses the existing two-lane roadway as a service road and constructs the interstate to the west of NC 211. Refer to the "Existing Location Along NC 211" typical section on Sheets 2 and 3, included in **Part VIII Figures**. The portion that parallels US 17 uses the existing northbound lanes as a two-lane, two-way access road. The existing US 17 southbound lanes are utilized as the proposed northbound interstate lanes and the rest of the roadway section is built to the north of existing US 17. Refer to the "Existing Location Along US 17" typical section on Sheets 3 and 4, included in **Part VIII Figures**. A preliminary count of residences and businesses was made along US 17. Approximately 2/3 of all residences and businesses are located along the southern side of the highway, including the Brunswick Community Hospital. In addition, major utilities are located along the southern side of the highway. Locations along the northern side of the highway that will be significantly impacted include the new Brunswick Medical Park, Brunswick County EMS, two car dealerships, and Lehew/Chapel Hill Cemetery. Lehew/Chapel Hill Cemetery is located within the footprint of the northern Shallotte Bypass/US 17 Business interchange (see Sheet 3 **Part VIII Figures**). Alternative A will take approximately 650 existing graves and 350 plots in the cemetery. However, to minimize the overall impacts to existing US 17, this study proposes constructing Alternative A on the north side of existing US 17.

Section 4-Alternative A includes two trumpet interchanges, five diamond interchanges, two grade separations over roadways and one bridging over a natural system. The alternative proposes an interchange with Little Macedonia Road (SR 1343)/Middle River Road (SR 1448), bridging a crossing of the Royal Oak Swamp, a grade separation with Big Macedonia Road (SR 1342), a trumpet interchange with US 17 near Supply, and an interchange at Mt. Pigsah Road (SR 1130)/Sellers Road (SR 1344) near Brunswick Community Hospital. Along the Shallotte Bypass Alternative A proposes a trumpet interchange with US 17 Business at the northern end of the bypass, a grade separation with Smith Ave (SR 1357), utilizes the existing NC 130 interchange, and proposes an interchange with US 17 Business/Old Shallotte Road (SR 1316) at the southern end of the bypass. South of the bypass, interchanges with Ocean Isle Beach Road (SR1184) and NC 904 are proposed. All proposed crossroads are bridged over the interstate with the exception of the grade separation at Big Macedonia Road (SR 1342) in Supply. Development will be less impacted from the interstate alternative crossing over Big Macedonia Road (SR 1342). It also facilitates maintaining the existing Big Macedonia Road (SR 1342)/NC 211 intersection. In Shallotte, Smith Ave (SR 1357) is to be

extended northward on new location to facilitate the construction of the grade separation. At the Ocean Isle Beach Road (SR1184) interchange, the existing road tees into US 17. Extending Ocean Isle Beach Road (SR1184) northward 0.4 mile to Old Shallotte Road (SR 1316) is part of the proposed improvements of Alternative A.

The spacing between interchanges along Alternative A varies from 1.25 to 3.80 miles. The 1.25-mile spacing between the northern trumpet interchange and the Sellers Road (SR 1344)/ Mt. Pigsah Road (SR 1130) interchange may be considered less than desirable but is necessary in order to provide access to the community hospital located on US 17 just east of Mt. Pigsah Road (SR 1130). The spacing between the existing NC 130 interchange and the southern US 17 Business interchange is 1.30 miles and is acceptable for an urban area. The impact to utilities is expected to be low along the Shallotte Bypass and moderate along the remainder of the alternative. Alternative A, in summary, utilizes existing roadway corridors to construct the interstate and avoids environmental impacts that would occur from a new location alternative. However, there will be significant human environment impacts along existing US 17 prior to and after the Shallotte Bypass.

A proposed 350-foot right-of-way width will accommodate the interstate and adjacent service roads. Along NC 211 approximately 220 feet of additional right-of-way is needed. Along US 17 approximately 175 feet of additional right-of-way is needed. No additional right-of-way is needed for the mainline along the existing US 17 Shallotte Bypass. Sheets 3 and 4 included in **Part VIII Figures** show interchange and grade separation locations and proposed typical sections for Section 4-Alternative A.

It is anticipated that **Section 4-Alternative A** improvements will require the relocation of eighty (80) residences and eighty-three (83) businesses. The total cost, including construction and right-of-way, is estimated to be $ 269,300,000.

Construction……..…$ 196,000,000
Right-of-way……...$ 73,300,000
Total Cost (Sec. 4-Alt. A)…….$ 269,300,000

Section 4-Alternative B

Section 4-Alternative B is entirely on new location north of existing US 17. It turns southwest from Middle River onto new location and ends at NC 904, 1.0 mile north of US 17. The total length of the alternative is 15.5 miles. Section 4-Alternative B has four diamond interchanges and two grade separations. The alternative proposes a grade separation over Little Macedonia Road (SR 1343) in Middle River, an interchange with a proposed NC 211/US 17 connector, a grade separation with Big Macedonia Road (SR 1342), an interchange with Royal Oak Road (SR 1345), an interchange with NC 130, 1.2 miles northwest of the Shallotte Bypass, and an interchange with NC 904, 1.0 mile north of US 17. All proposed crossroads are bridged over the interstate. The NC 211/US 17 connector is a 2.6-mile multi-lane roadway that links Supply to the proposed interstate. The spacing between interchanges along Alternative B varies from 3.4 to 5.6 miles and is acceptable for rural interstates. The impact to utilities is expected to be low for this alternative. This alternative, in summary, avoids much of the existing development along NC 211 and US 17 and avoids large wetland areas to the north of the corridor.

A proposed 350-foot right-of-way width will accommodate the interstate and service roads. A more detailed study of the new location alternative is needed to determine exact locations of service roads. Sheets 3 and 4 included in **Part VIII Figures** show interchange and grade separation locations and proposed typical sections for Section 4-Alternative B.

It is anticipated that **Section 4-Alternative B** improvements will require the relocation of eighteen (18) residences and three (3) businesses. The total cost, including construction and right-of-way, is estimated to be $ 169,000,000.

Construction……..…$ 159,000,000
Right-of-way……...$ 10,000,000
Total Cost (Sec. 4-Alt. B)…….$ 169,000,000

Section 4-Alternative C

Section 4-Alternative C begins on new location, connects to the US 17 Shallotte Bypass, moves back onto new location just west of the NC 130 interchange and continues to NC 904, 1.0 mile north of US 17. The total length of the alternative is 16.3 miles; approximately 14 miles on new location and approximately 2 miles on existing US 17 Shallotte Bypass. The existing Shallotte Bypass is a limited access facility with one interchange and three at-grade intersections. The portion of Alternative C along the Shallotte Bypass utilizes the existing roadway and improves the facility to full control of access.

Section 4-Alternative C includes two trumpet interchanges, three diamond interchanges, one modified existing interchange and three grade separations. The alternative proposes a grade separation over Little Macedonia Road (SR 1343) in Middle River, an interchange with a proposed US 17 connector, a grade separation with Big Macedonia Road (SR 1342), an interchange with Royal Oak Road (SR 1345) and then connects with the Shallotte Bypass between US 17 Business and Smith Ave (SR 1357). Alternative C proposes a trumpet interchange with the Shallotte Bypass, a grade separation with Smith Ave (SR 1357) and moves back onto new location just west of the existing NC 130 interchange. The western NC 130 interchange ramp is realigned to connect to the proposed interstate. Auxiliary lanes are needed between the proposed trumpet interchange and the NC 130 interchange. No other modifications to the NC 130 interchange are necessary. The alternative then proceeds on new location, grade separates McMilly Road (SR 1320) and includes an interchange at NC 904, 1.0 mile north of US 17. All proposed crossroads are bridged over the interstate. At the beginning of Section 4, the NC 211/US 17 connector is a 2.6-mile multi-lane roadway that links Supply to the proposed interstate. The grade separations and interchanges on the new location portion of Alternative C, with the exception of the grade separation at McMilly Road (SR 1320), are the same as Alternative B. The grade separation at Smith Ave (SR 1357) is the same as Alternative A. The spacing between interchanges along this alternative varies from 2.8 to 5.8 miles and is acceptable for rural interstates. Although the spacing between the NC 130 interchange and the new location trumpet interchange in Shallotte is less than 1 mile, it satisfies NCDOT criteria with auxiliary lanes connecting the ramps between the interchanges. The impact to utilities is expected to be low for this alternative. Alternative C, in summary, avoids most of the existing development along NC 211 and US 17, avoids large wetland areas to the north, and utilizes an existing interchange and a portion of the existing Shallotte Bypass.

A proposed 350-foot right-of-way width will accommodate the interstate and service roads. A more detailed study of the new location alternative is needed to determine exact locations of service roads. Sheets 3 and 4 included in **Part VIII Figures** show interchange and grade separation locations and proposed typical sections for Section 4-Alternative C.

It is anticipated that **Section 4-Alternative C** improvements will require the relocation of fifty-three (53) residences and three (3) businesses. The total cost, including construction and right-of-way, is estimated to be $ 180,300,000.

Construction……..…$ 162,000,000
Right-of-way……...$ 18,300,000
Total Cost (Sec. 4-Alt. C)…….$ 180,300,000

Section 4-Alternative D

Section 4-Alternative D begins on new location (similar to Alternatives B and C), connects to the US 17 Shallotte Bypass, and parallels US 17 through Shallotte to NC 904 (along Alternative A). The total length of this alternative is 16.4 miles; 7.8 miles on new location, 3.2 miles on existing Shallotte Bypass, and 5.4 miles parallel to US 17. The existing Shallotte Bypass is a limited access facility with one interchange and three at-grade intersections. The portion of Alternative D along the Shallotte Bypass uses the existing roadway and improves the facility to full control of access. The portion that parallels US 17 utilizes the existing northbound travel lanes as a two-lane, two-way access road. The existing US 17 southbound lanes would be utilized as the proposed northbound interstate lanes and the rest of the roadway section would be built to the north of existing US 17. Refer to the "Existing Location Along US 17" typical section on Sheets 3 and 4 in **Part VIII Figures**.

Section 4-Alternative D includes one trumpet interchange, five diamond interchanges, and three grade separations. The alternative proposes a grade separation over Little Macedonia Road (SR 1343) in Middle River, an interchange with a proposed NC 211/US 17 connector, a grade separation with Big Macedonia Road (SR 1342), an interchange with Royal Oak Road (SR 1345) and then connects with the Shallotte Bypass between US 17 Business and Smith Ave (SR 1357). Alternative D proposes a trumpet interchange with the Shallotte Bypass, a grade separation with Smith Ave (SR 1357), utilizes the existing interchange with NC 130, and proposes an interchange with US 17 Business/Old Shallotte Road (SR 1316) at the southern end of the bypass. South of the bypass, interchanges with Ocean Isle Beach Road (SR1184) and NC 904 are proposed. All proposed crossroads are bridged over the interstate. At the beginning of Section 4, the NC 211/US 17 connector is a 2.6-mile multi-lane roadway that links Supply to the proposed interstate. The grade separations and interchanges on the new location portion of Alternative D are the same as Alternatives B and C. The interchanges and grade separations from Smith Ave (SR 1357) southward are the same as Alternative A. The spacing between interchanges along Alternative D varies from 1.3 to 3.3 miles and meets AASHTO standards. The impact to utilities is expected to be moderate along US 17 and low along the Shallotte Bypass and new location portions. Alternative D, in summary, avoids the existing development along NC 211 and US 17 from Middle River to Shallotte, avoids large wetland areas to the north, and utilizes existing roadway from the Shallotte Bypass to NC 904. There will, however, be significant human environment impacts along the existing US 17 portion of Alternative D.

A proposed 350-foot right-of-way width will accommodate the interstate and service roads. A more detailed study of the new location portion is needed to determine exact locations of service roads. Sheets 3 and 4 included in **Part VIII Figures** show interchange and grade separation locations and proposed typical sections for Section 4-Alternative D.

It is anticipated that **Section 4-Alternative D** improvements will require the relocation of thirty-six (36) residences and thirty-eight (38) businesses. The total cost, including construction and right-of-way, is estimated to be $ 219,300,000.

Construction……..…$ 180,000,000
Right-of-way……...$ 39,300,000
Total Cost (Sec. 4-Alt. D)…….$ 219,300,000

Section 4-Alternative E

Section 4-Alternative E (similar to Alternative A) begins parallel to NC 211 from Middle River to Supply and parallels US 17 from Supply to Shallotte, utilizes the existing Shallotte Bypass, and then (similar to Alternative C) moves back onto new location just west of the NC 130 interchange and continues to NC 904, 1.0 mile north of US 17. The total length of the alternative is 17.7 miles; 3.0 miles alongside NC 211, 5.2 miles parallel to US 17, 2.8 miles on existing Shallotte Bypass, and 6.7 miles on new location. The existing Shallotte Bypass is a limited access facility with one interchange and three at-grade intersections. The part of the alternative along the Shallotte Bypass uses the existing roadway and improves the facility to full control of access. The portion of the alternative that parallels NC 211 uses the existing two-lane roadway as a service road and constructs the interstate to the west of NC 211. The portion that parallels US 17 utilizes the existing northbound travel lanes as a two-lane, two-way access road. The existing US 17 southbound lanes are used as the proposed northbound interstate lanes and the rest of the roadway section is built to the north of existing US 17. Refer to the "Existing Location Along US 17" typical section on Sheets 3 and 4, included in **Part VIII Figures**. Although constructing the new roadway on the north side avoids impacting the hospital and the major utilities, it does significantly impact Lehew/Chapel Hill Cemetery, the new Brunswick Medical Park and other existing development. Alternative E will take approximately 650 existing graves and 350 plots in the cemetery. However, to minimize the overall impacts to existing US 17, this study proposes constructing Alternative A on the north side of existing US 17.

Section 4-Alternative E includes three trumpet interchanges, three diamond interchanges, one modified exiting diamond interchange, two grade separations over roadways and one bridging over a natural system. The alternative proposes an interchange with Little Macedonia Road (SR 1343)/Middle River Road (SR 1448), bridging a crossing of the Royal Oak Swamp, a grade separation with Big Macedonia Road (SR 1342), a trumpet interchange with US 17 near Supply, and an interchange at Mt. Pigsah Road (SR 1130)/Sellers Road (SR 1344) near Brunswick Community Hospital. Along the Shallotte Bypass Alternative E proposes a trumpet interchange with US 17 Business at the northern end of the bypass, a grade separation with Smith Ave (SR 1357) and moves back onto new location just west of the existing NC 130 interchange. Proposed modifications to the NC 130 interchange are the same as Section 4-Alternative C. The alternative then proceeds on new location, grade separates McMilly Road (SR 1320) and includes an interchange at NC 904, 1.0 mile north of US 17. All proposed crossroads are bridged over the interstate with the exception of the grade separation at Big Macedonia Road (SR 1342) in Supply (similar to Alternative A).

The spacing between interchanges along Alternative E varies from 1.25 to 3.80 miles. With auxiliary lanes proposed between the NC 130 interchange and the new location trumpet interchange at the southern end of the Shallotte bypass (see also **Section 4-Alternative C**), interchange spacing satisfies NCDOT standards. The impact to utilities is expected to be moderate along US 17 and low along the Shallotte Bypass and new location portions. Section 4-Alternative E, in summary, avoids the existing development along US 17 south of Shallotte to NC 904, avoids large wetland areas to the north, and utilizes existing roadway corridors from Middle River to the Shallotte Bypass. However, there will be significant human environment impacts along existing US 17.

It is anticipated that **Section 4-Alternative E** improvements will require the relocation of ninety-five (95) residences and forty-eight (48) businesses. The total cost, including construction and right-of-way, is estimated to be $ 226,100,000.

Construction……..…$ 174,000,000
Right-of-way……...$ 52,100,000
Total Cost (Sec. 4-Alt. D)…….$ 226,100,000

Section 5

Section 5 begins at NC 904, proceeds southwest alongside US 17, and ends south of Hickman Road (SR1303). The section break between Sections 4 and 5 was created because of the Carolina Bays Parkway study extending its study limits to NC 904. Section 5 data will facilitate comparison and coordination between this study and the Carolina Bays Parkway study upon completion of both documents. Refer to **Part III Adjacent Projects** of this report for additional information on the Carolina Bays Parkway study.

There are two alternatives considered in Section 5. Alternative A has a total length of 4.0 miles and parallels existing US 17. Alternative B has a total length of 4.3 miles and connects Section 4 new location alternatives to existing US 17. Both Alternatives A and B travel through Thomasboro Crossroads. Both alternatives include one grade separation and one interchange. Sheet 4 in **Part VIII Figures** shows Section 5 interchange and grade separation locations and proposed typical sections. A proposed 350-foot right-of-way width will accommodate the proposed typical section. Portions of the alternatives that parallel existing US 17 require approximately 175 feet of additional right-of-way.

Section 5-Alternative A

Section 5-Alternative A utilizes existing roadway. The alternative uses the existing US 17 northbound lanes as a two-lane, two-way access road. The existing US 17 southbound lanes are utilized as the proposed northbound interstate lanes and the rest of the roadway section is built to the north of existing US 17. Refer to the “Existing Location Along US 17” typical section on Sheet 4 in **Part VIII Figures**. Alternative A includes a grade separation with Thomasboro Road (SR 1165)/ Pea Landing Road (SR 1304) and an interchange with Hickman Road (SR 1303). Both propose bridging the crossroads over the interstate. Utility impacts are expected to be moderate in this section. Section 5-Alternative A should be used in conjunction with Section 4-Alternative A or D.

It is anticipated that **Section 5-Alternative A** improvements will require the relocation of forty (40) residences and thirteen (13) businesses. The total cost, including construction and right-of-way, is estimated to be $ 57,800,000.

Construction……..….$ 39,000,000
Right-of-way……..$ 18,800,000
Total Cost (Sec. 5-Alt. A)…….$ 57,800,000

Section 5-Alternative B

Section 5-Alternative B is on new location. This alternative connects Section 4 new location alternatives to existing US 17. Alternative B includes a grade separation with Pea Landing Road (SR 1304) and an interchange with US 17/Hickman Road (SR 1303). Both locations propose bridging the crossroads over the interstate. Included with the proposed interchange is the relocation of US 17 and Hickman Road (SR 1303) to create a more perpendicular approach to the crossing. The interchange concept also includes loop ramps for traffic turning from US 17 onto the interstate. Section 5-Alternative B should be used in conjunction with Section 4-Alternatives B, C or E.

It is anticipated that **Section 5-Alternative B** improvements will require the relocation of sixty-seven (67) residences and four (4) businesses. The total cost, including construction and right-of-way, is estimated to be $ 73,300,000.

Construction……..….$ 44,000,000
Right-of-way……..$ 29,300,000
Total Cost (Sec. 5-Alt. B)…….$ 73,300,000

Section 6

Section 6 begins south of Hickman Road (SR1303), proceeds southwest along US 17, and ends at the South Carolina state line. The section break between Sections 5 and 6 is included because of the Carolina Bays Parkway study. The original study limit of the CBP study was at the Hickman Road (SR 1303) intersection. Section 6 data will facilitate comparison and coordination between this study and the CBP study upon completion of both documents. Refer to **Part III Adjacent Projects** for additional information on the Carolina Bays Parkway study.

In section 6 only one alignment (worst case scenario) was considered. This alternate has a total length of 2.6 miles and utilizes existing US 17, traveling by the town of Calabash. The costs associated with this alignment are to be used for comparison purposes only. Once the Carolina Bays Parkway study is completed, the cost estimate for Sections 5 and 6 of R-3436 Reevaluation will be revised appropriately. Proposed improvements include an interchange with Calabash Road (SR 1300)/Country Club Road (SR 1168). Sheet 4 in **Part VIII Figures** shows the Section 6 interchange location and typical section. This section proposes constructing the new interstate symmetrically about the existing centerline. A total 350-foot right-of-way width will accommodate the interstate and service roads. Approximately 60 feet of additional right-of-way is needed on each side of existing US 17 through Section 6. Utility impacts are expected to be high in this section. Section 6 improvements also include installation of a North Carolina welcome center located near the South Carolina state line.

It is anticipated that **Section 6** improvements will require the relocation of sixty-four (64) residences and twenty-five (25) businesses. The total cost, including construction and right-of-way, is estimated to be $ 84,700,000.

	Highway	Welcome Ctr.	Section Cost
Construction……	$ 30,000,000	$ 5,000,000	$ 35,000,000
Right-of-way……	$ 44,100,000	$ 5,600,000	$ 49,700,000
Subtotal ……..	$ 74,100,000	$ 10,600,000	$ 84,700,000

V. Traffic Operations

The Interstate 74 projected base year 2004 Average Daily Traffic (ADT) ranges from 10,500 to 13,700 vehicles per day (vpd). The estimated design year 2030 ADT ranges from 16,800 to 57,800 vpd. Along existing US 74-76 the 2030 ADT ranges from 22,600 to 31,000 vpd. The heaviest volume of traffic is located near Whiteville. The design year traffic along NC 211 ranges from 16,800 to 19,600 vpd with the heaviest volume located near Supply. Along existing US 17, the 2030 ADT ranges from 31,700 to 57,800 vpd. The heaviest volumes of traffic are located just before and after the Shallotte Bypass. Along the Shallotte Bypass the 2030 ADT varies from 39,600 to 44,000. The 2030 ADT along new location interstate is estimated to range from 19,600 to 31,700 vpd. The truck traffic along the project is expected to make up 2 to 12% of daily traffic, with the heaviest truck percentages expected along US 74-76.

Based on the length and scope of this study, a detailed capacity analysis evaluation was not developed for all traffic components within the 65 mile corridor. Interstate mainline volumes were evaluated utilizing the Highway Capacity Software (HCS 2000) to determine the proposed levels of service (LOS) for this proposed Interstate 74. Traffic forecasts are given in Average Daily Traffic (ADT) volumes. The following table displays the resulting levels of service for the different mainline segments of this study alignment.

INTERSTATE LEVELS OF SERVICE		
Mainline Segment	**2030 ADT**	**Level of Service (LOS)**
Section 1 - Along Existing US 74-76	31,000	B
Sections 2 and 3 - On New Location	19,600	A
Sections 4 thru 6 - Along Existing US 17	57,800	D
Sections 4 thru 6 - On New Location	31,700	B
Section 4 - Along Existing Shallotte Bypass	44,000	C

The interchange types proposed in this study were evaluated based on a functional analysis only. A more detailed traffic analysis will be required for the interchanges and intersections in later planning and design phases of the project.

In general, fully controlled access facilities such as interstates have lower accident and fatality rates than other roadway facilities. Much of this interstate study corridor travels along existing rural US routes. The existing US 74-76 and US 17 routes have experienced 13 fatalities within the I-74 study area over the three-year period from September 1, 2000 through August 31, 2003. The existing US 74-76 and US 17 routes' fatality rates, 1.93 and 2.74 per 100 million vehicle miles (100MVM) respectively, are greater than the statewide fatality rate of 1.45 per 100MVM for rural US routes. The statewide fatality rate, from 2000-2002, for rural US routes (1.45 per 100MVM) is twice that of rural interstates (0.67 per 100 MVM). The statewide crash rate for all accidents for rural US routes (128.34 per 100 MVM) is also approximately twice that of rural interstates (67.62 per 100 MVM). Therefore, constructing a full controlled access interstate freeway will create a safer high-speed facility. In addition, constructing the full controlled access interstate along existing corridors will reduce the potential for accidents and fatalities.

VI. Recommendations

The following table shows the associated lengths, residential and business relocations, qualitative environmental impacts, and costs for each of the section alignments studied in this report.

SECTION DATA													
SECTION	1	2A	2B	3A	3B	4A	4B	4C	4D	4E	5A	5B	6
Length (Miles)	19.2	10.2	10.3	11.5	11.3	17.7	15.5	16.3	16.4	17.7	4.0	4.3	2.6
Res./Bus. Relocatees	2 / 0	4 / 0	4 / 0	6 / 1	0 / 0	80 / 83	18 / 3	53 / 3	36 / 38	95 / 48	40 / 13	67 / 4	64 / 25
Environ. Impact	low	moderate	moderate	high	low	high	low	low	moderate	high	moderate	moderate	moderate
Constr. Cost*	$85.00	$97.00	$99.00	$103.00	$103.00	$196.00	$159.00	$162.00	$180.00	$174.00	$39.00	$44.00	$35.00
R/W Cost*	$10.00	$3.90	$3.80	$3.30	$2.20	$73.30	$10.00	$18.30	$39.30	$52.10	$18.80	$29.30	$49.70
Section Cost*	$95.00	$100.90	$102.80	$106.30	$105.20	$269.30	$169.00	$180.30	$219.30	$226.10	$57.80	$73.30	$84.70

* Costs listed in millions of dollars.

Section Data Table

The following table shows all feasible alignment combinations and their associated data.

FEASIBLE ALIGNMENT COMBINATIONS													Res./Bus.	Environ.	Length	Total
1	2A	2B	3A	3B	4A	4B	4C	4D	4E	5A	5B	6	Relocatees	Impact	(Miles)	Cost*
X	X		X		X					X		X	196 / 122	high	65.2	$714.00
X	X		X			X					X	X	161 / 33	moderate	63.3	$629.20
X	X		X				X				X	X	196 / 33	moderate	64.1	$640.50
X	X		X					X		X		X	152 / 77	moderate	63.9	$664.00
X	X		X						X		X	X	238 / 78	moderate	65.5	$686.30
X		X		X	X					X		X	190 / 121	high	65.1	$714.80
X		X		X		X					X	X	155 / 32	low	63.2	$630.00
X		X		X			X				X	X	190 / 32	low	64.0	$641.30
X		X		X				X		X		X	144 / 76	moderate	63.8	$664.80
X		X		X					X		X	X	232 / 77	moderate	65.4	$687.10

* Costs listed in millions of dollars.

Recommended Alternative.

Alignment Combinations Table

VI. Recommendations

With the installation of the interstate each of the alternatives for this project are similar in that they provide safe, high-speed facilities by which to travel to neighboring communities, counties and states. These alternatives also improve accessibility, mobility, and connectivity to the aforementioned areas. Criteria for recommending an alternative for this corridor include traffic safety and operations, as well as functionality, environmental impacts, human development impacts, monetary costs and promoting the goals of the State of North Carolina for a better infrastructure.

Section 1 improvements, as described in this study, are required to upgrade this section of the US 74-76 facility in Columbus County to interstate standards. If the TIP project R-4462 as mentioned in **Part III Adjacent Projects** becomes funded and scheduled prior to this project, the costs can be excluded from subsequent phases of this project. Therefore, **Section 1** improvements are recommended for this study.

There are two alternatives considered in Section 2 and Section 3. **Alternative A** and **Alternative B** each depart existing US 74-76 near Bolton in Columbus County and travel along the NC 211 corridor towards Supply in Brunswick County. The only existing development along the NC 211 corridor from Bolton to Supply is located in the Honey Island and Bear Pen Island areas. There are also several Natural Heritage Element Occurrences (NHEO) in these areas. Both alternatives bypass the Green Swamp Preserve to the west. Although **Alternative A** parallels more of existing NC 211 and utilizes more existing right-of-way than **Alternative B, Alternative A** will impact Honey Island Swamp and Bear Pen Island Swamp, as well as affect the Honey Island Community. With its more easterly alignment, **Alternative B** greatly minimizes the impacts to Honey Island Swamp, Bear Pen Swamp, and the surrounding natural areas. **Alternative B** does impact more wetlands, but these areas are previously disturbed tree farms. The costs for each alternative through **Sections 2 and 3** are comparable, as can be seen in the **Section Data Table** on the previous page. However, since **Alternative B** adequately serves local residents without causing relocations, satisfies the Green Swamp Preserve owners, provides a feasible interstate corridor and minimizes impacts to Honey Island, Bear Pen Island and the surrounding natural areas, **Alternative B** in **Section 2** and **Section 3** is the recommended alternative.

There are five alternatives considered in **Section 4**; **Alternatives A** through **E**. **Alternative A** has less environmental impacts and utilizes more existing roadway than other alternatives. However, it will also have the most relocatees and human environment impacts, the highest costs, and higher volumes of traffic. **Alternative B** is entirely on new location, has the lowest costs and fewest relocatees. **Alternative C** which is mostly on new location with a connection to the US 17 Shallotte Bypass, has the 2nd least expensive costs, the 2nd least relocatees, and lower environmental impacts than Alternative B. **Alternatives D and E** fall in between the best and worst alternatives. **Alternative A** and **Alternative E** significantly impact the Lehew/Chapel Hill Cemetery. In general, the new location alternatives (i.e. **Alternatives B and C**) will have higher levels of service than the existing corridor alternatives (i.e. **Alternative A, D and E**) which place proposed interstate traffic on the existing US 17 corridor. The two foremost alternatives for recommendation are **Alternative B** and **Alternative C** because of their lower costs, lower amounts of relocations, and higher levels of service. **Alternatives B and C** are approximately the same length. **Alternative C** avoids some natural resource impacts by utilizing the US 17 Shallotte Bypass. Although **Alternative C** is not the least

expensive, it is the best overall alternative, connecting to the existing US 17 Shallotte Bypass, and avoiding excessive impacts to the human and natural environments. **Alternative C**, therefore, is the recommended alternative in **Section 4**.

There are two alternatives in **Section 5** of the study. **Section 5 Alternative A** ties into the adjacent alignments that utilize existing US 17; however these alignments were not preferred at this time. **Section 5 Alternative B** connects to the preferred new location alignment of **Section 4 Alternative C.** In Section 6 only one alignment (worse case scenario) was considered, as previously explained in **Part IV Studied Alternatives.** Please recall that **Section 5** and **6** improvements shown in this report will be reevaluated at a later date to more accurately reflect the findings of the Carolina Bays Parkway study currently underway. Once the CBP study is completed, **Sections 5** and **6** of this study will be revised appropriately. The costs shown here are to be used for comparison purposes only.

The recommended alternative includes **Section 1, Section 2-Alternative B, Section 3-Alternative B, Section 4-Alternative C, Section 5-Alternative B,** and **Section 6**. The following table shows the total costs for the recommendations in this report.

RECEOMMENDED PROJECT COSTS			
Alternative	**Construction Cost**	**Right-of-Way Cost**	**Total Section/ Alternative Cost**
Section 1	$ 85,000,000	$ 10,000,000	$ 95,000,000
Section 2-Alternative B	$ 99,000,000	$ 3,800,000	$ 102,800,000
Section 3-Alternative B	$ 103,000,000	$ 2,200,000	$ 105,200,000
Section 4-Alternative C	$ 162,000,000	$ 18,300,000	$ 180,300,000
Section 5-Alternative B	$ 44,000,000	$ 29,300,000	$ 73,300,000
Section 6	$ 35,000,000	$ 49,700,000	$ 84,700,000

The recommended alternative yields a total project cost of **$ 641,300,000**.

VII. Additional Comments

A detailed environmental study was not conducted for this feasibility study. However, an environmental screening did result in the following possible occurrences, which will need further evaluation in subsequent stages of the development of this project:

- The National Wetland Inventory (NWI) mapping indicates that this project will have impacts to wetlands. Best Management Practices should be used during the design and construction of this project in order to minimize impacts wetlands. NCDOT Division 6 staff states "the Department does have a unique opportunity to offset the impacts [to wetlands] by initiating a mitigation strategy that expands the reaches of the Green Swamp Preserve." Refer to page 3 of a letter received from Division 6 staff dated May 20, 2004 in **Appendix B**.

- The Department of Natural Resources – Natural Heritage Section indicates that there are several occurrences of threatened or endangered species located along the study alternatives, especially along NC 211 in Sections 2 and 3. Sheets 1 – 4, included in **Part VIII Figures** in the back of this report, show locations of plant and animal Natural Heritage Element Occurrences (NHEO) within the study area. Please also refer to a letter received from The Nature Conservancy (TNC) dated May 14, 2004 in **Appendix B** for more information on particular species located within the Green Swamp Preserve.

Other items or comments that should be noted from this study and considered during future planning and design phases of this project:

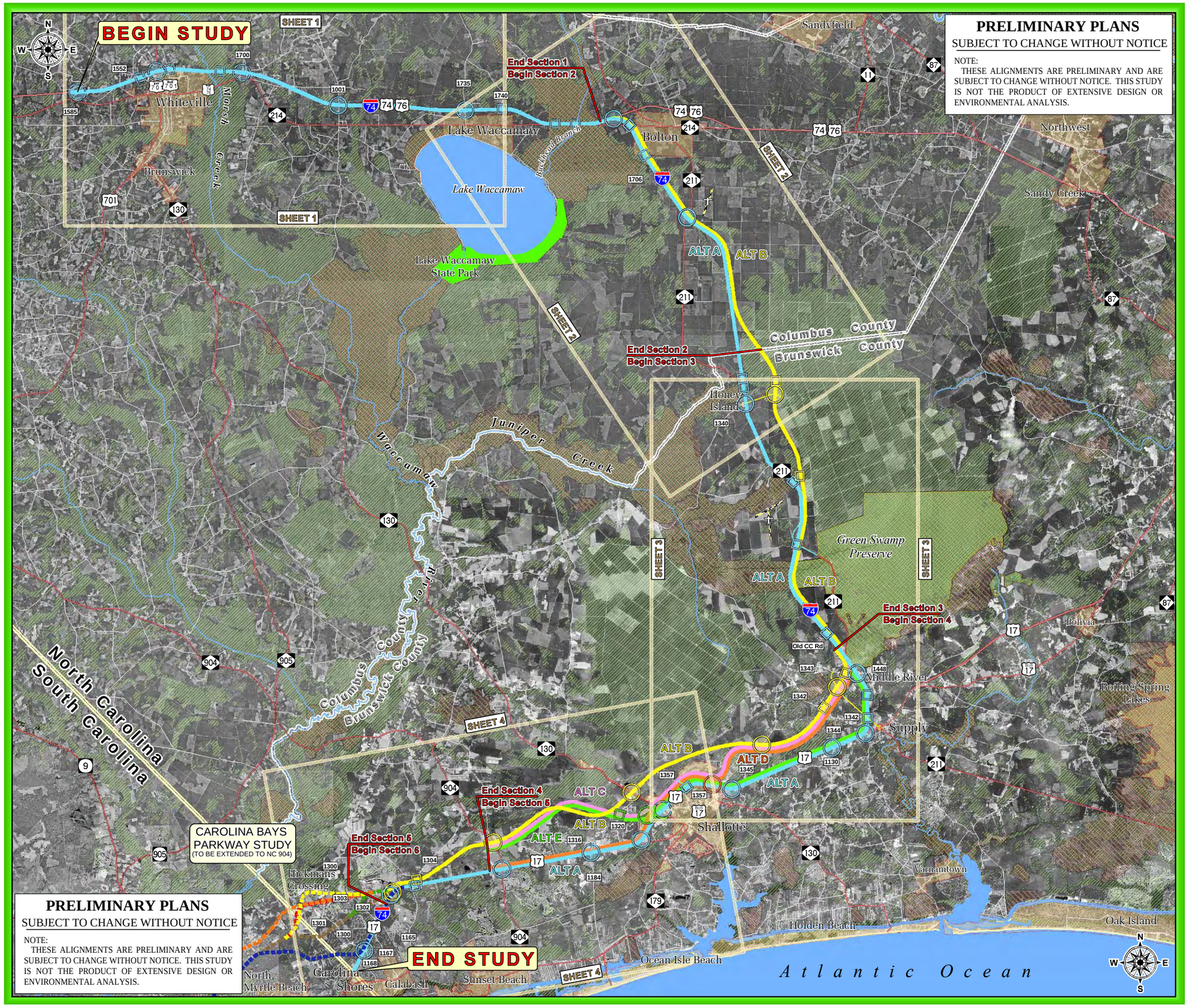
- The NCDOT has conducted a previous study of the I-74 corridor (R-3436) which was completed in 1996. This previous study's corridor takes a more direct route from Whiteville to the South Carolina state line; proceeding from US 74 on new location west of Whiteville, traveling south across the Waccamaw River at the Columbus/Brunswick County line, and connecting with US 17 west of Shallotte. However, this particular corridor is not shown on the Strategic Highway Corridors Vision Plan for Southeastern NC (see **Appendix A**). The study corridors from both the R-3436 and R-3436REEV studies are considered alternative routes for the I-74 corridor. The functional design alternatives will produce costs for comparative purposes.

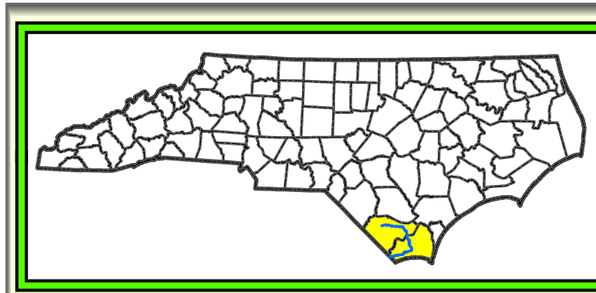
- Close coordination with adjacent projects should be maintained throughout the phases of this project. Refer to **Part III Adjacent Projects** of this report for additional information.

- Several local government officials and NCDOT representatives have expressed support for this Interstate 74 corridor, i.e. the Governor, the Cape Fear Council of Governments, the Town of Shallotte, NCDOT Board Member Lanny Wilson, and the Town of Lake Waccamaw. Please also refer to **Appendix B** for copies of letters received during the development of this study.

VIII. Figures

Project Study Map
Sheets 1 to 4 – Study Alternatives Maps

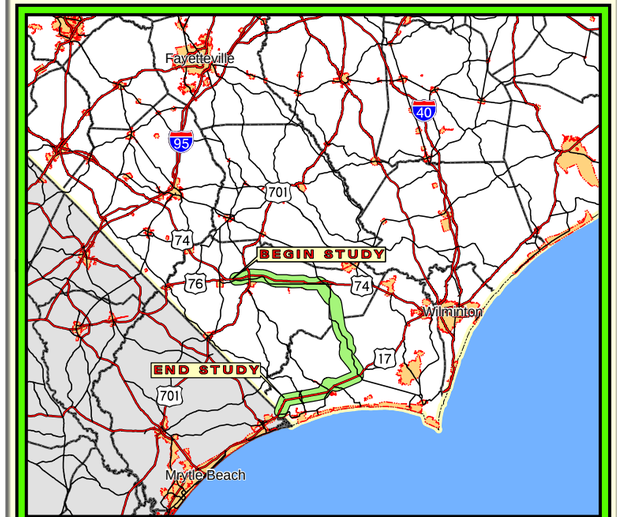




Legend

- Proposed Alternatives
- Carolina Bays Parkway Study
- Existing Grade Separation (Over Roadway or Water)
- Proposed Grade Separation
- Existing Interchange
- Proposed Interchange
- Private Airfield
- Highways
- Rivers and Streams
- Municipal Boundary
- Water Features
- NWI Wetlands
- Natural Areas
- Green Swamp Preserve
- State Parks
- County Boundary
- State Boundary

0 2 4 6 8 10 Miles



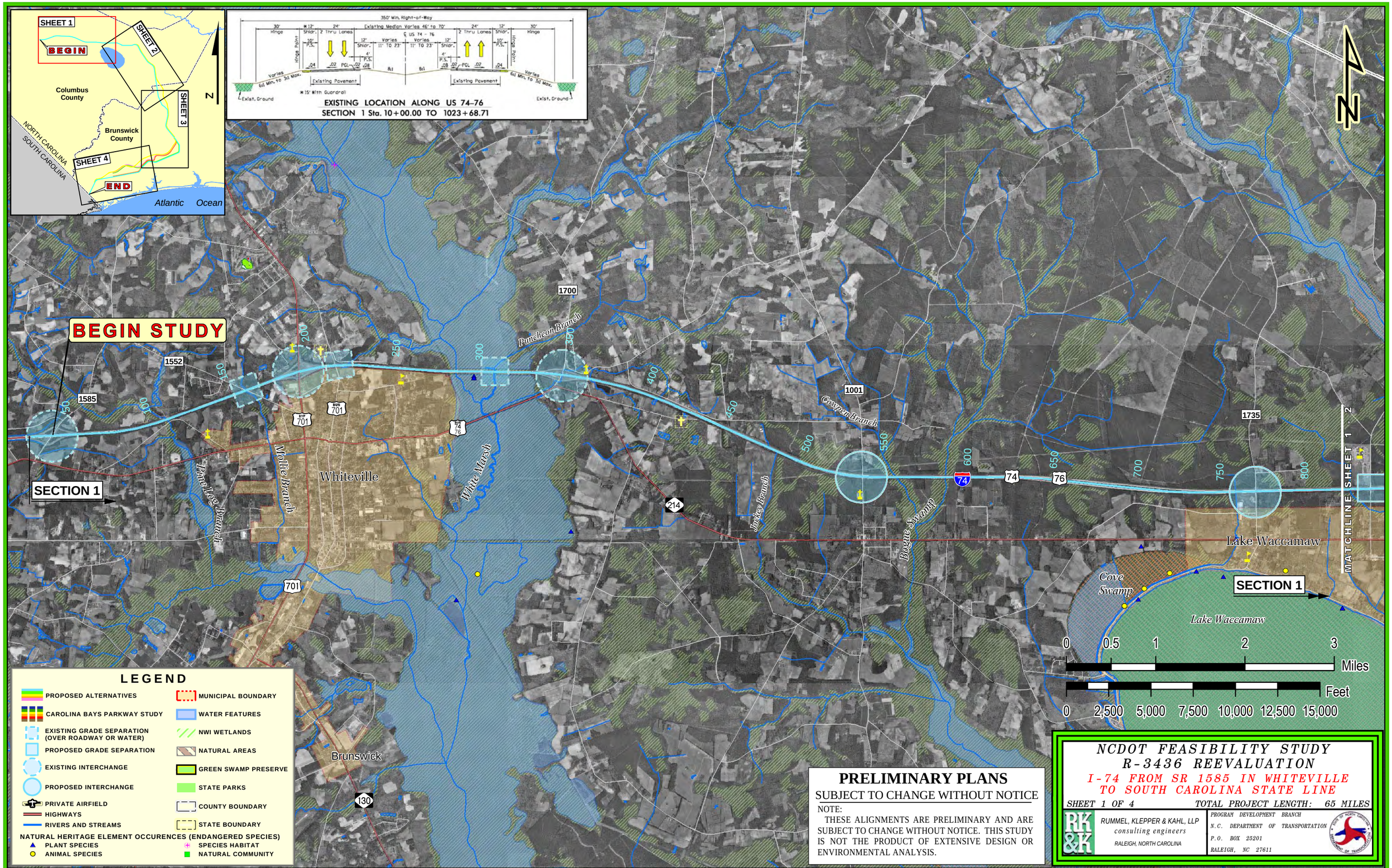
NCDOT FEASIBILITY STUDY
R-3436 REEVALUATION
I-74 FROM SR 1585 IN WHITEVILLE
TO SOUTH CAROLINA STATE LINE

PROJECT STUDY MAP — TOTAL PROJECT LENGTH: 65 MILES

RUMMEL, KLEPPER & KAHL, LLP
consulting engineers
RALEIGH, NORTH CAROLINA

PROGRAM DEVELOPMENT BRANCH
N.C. DEPARTMENT OF TRANSPORTATION
P.O. BOX 25201
RALEIGH, NC 27611

PROJECT STUDY MAP


SHEET 1
BEGIN
SHEET 2
SHEET 3
SHEET 4
END
Columbus County
Brunswick County
NORTH CAROLINA
SOUTH CAROLINA
Atlantic Ocean
N
350' Min. Right-of-Way
Existing Median Varies 46' to 70'
℄ US 74 - 76
2 Thru Lanes
Existing Pavement
Exist. Ground
*15' With Guardrail
EXISTING LOCATION ALONG US 74-76
SECTION 1 Sta. 10+00.00 TO 1023+68.71
BEGIN STUDY
SECTION 1
1552
1585
1700
1001
1735
Puncheon Branch
Cowpen Branch
White Marsh
Mollie Branch
Pinelog Branch
Whiteville
Joskey Branch
Bogue Swamp
Lake Waccamaw
Cove Swamp
Brunswick
MATCHLINE SHEET 1 - 2
0 0.5 1 2 3 Miles
0 2,500 5,000 7,500 10,000 12,500 15,000 Feet
LEGEND
PROPOSED ALTERNATIVES
CAROLINA BAYS PARKWAY STUDY
EXISTING GRADE SEPARATION (OVER ROADWAY OR WATER)
PROPOSED GRADE SEPARATION
EXISTING INTERCHANGE
PROPOSED INTERCHANGE
PRIVATE AIRFIELD
HIGHWAYS
RIVERS AND STREAMS
MUNICIPAL BOUNDARY
WATER FEATURES
NWI WETLANDS
NATURAL AREAS
GREEN SWAMP PRESERVE
STATE PARKS
COUNTY BOUNDARY
STATE BOUNDARY
NATURAL HERITAGE ELEMENT OCCURENCES (ENDANGERED SPECIES)
PLANT SPECIES
ANIMAL SPECIES
SPECIES HABITAT
NATURAL COMMUNITY
PRELIMINARY PLANS
SUBJECT TO CHANGE WITHOUT NOTICE
NOTE:
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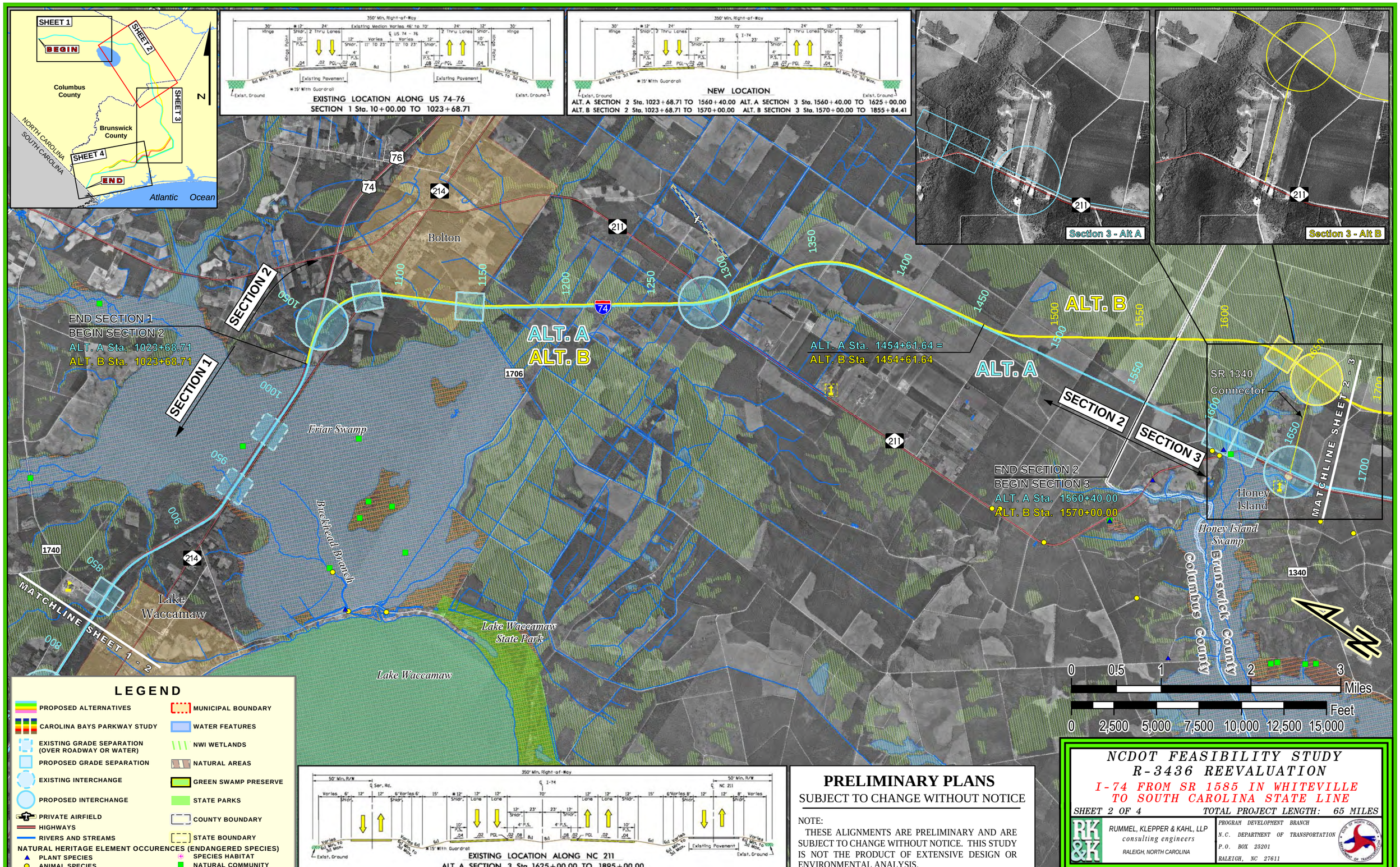
NCDOT FEASIBILITY STUDY
R-3436 REEVALUATION
I-74 FROM SR 1585 IN WHITEVILLE TO SOUTH CAROLINA STATE LINE
SHEET 1 OF 4
TOTAL PROJECT LENGTH: 65 MILES
RUMMEL, KLEPPER & KAHL, LLP
consulting engineers
RALEIGH, NORTH CAROLINA
PROGRAM DEVELOPMENT BRANCH
N.C. DEPARTMENT OF TRANSPORTATION
P.O. BOX 25201
RALEIGH, NC 27611

SHEET 1


SHEET 1
BEGIN
SHEET 2
SHEET 3
SHEET 4
END
Columbus County
Brunswick County
NORTH CAROLINA
SOUTH CAROLINA
Atlantic Ocean
N
EXISTING LOCATION ALONG US 74-76
SECTION 1 Sta. 10+00.00 TO 1023+68.71
NEW LOCATION
ALT. A SECTION 2 Sta. 1023+68.71 TO 1560+40.00 ALT. A SECTION 3 Sta. 1560+40.00 TO 1625+00.00
ALT. B SECTION 2 Sta. 1023+68.71 TO 1570+00.00 ALT. B SECTION 3 Sta. 1570+00.00 TO 1855+84.41
Section 3 - Alt A
Section 3 - Alt B
Bolton
Friar Swamp
Buckhead Branch
Lake Waccamaw
Lake Waccamaw State Park
Honey Island
Honey Island Swamp
SR 1340 Connector
END SECTION 1
BEGIN SECTION 2
ALT. A Sta. 1023+68.71
ALT. B Sta. 1023+68.71
SECTION 1
SECTION 2
SECTION 3
ALT. A
ALT. B
ALT. A Sta. 1454+61.64 =
ALT. B Sta. 1454+61.64
END SECTION 2
BEGIN SECTION 3
ALT. A Sta. 1560+40.00
ALT. B Sta. 1570+00.00
MATCHLINE SHEET 1 - 2
MATCHLINE SHEET 2 - 3
Columbus County
Brunswick County
0 0.5 1 2 3 Miles
0 2,500 5,000 7,500 10,000 12,500 15,000 Feet
LEGEND
PROPOSED ALTERNATIVES
CAROLINA BAYS PARKWAY STUDY
EXISTING GRADE SEPARATION (OVER ROADWAY OR WATER)
PROPOSED GRADE SEPARATION
EXISTING INTERCHANGE
PROPOSED INTERCHANGE
PRIVATE AIRFIELD
HIGHWAYS
RIVERS AND STREAMS
MUNICIPAL BOUNDARY
WATER FEATURES
NWI WETLANDS
NATURAL AREAS
GREEN SWAMP PRESERVE
STATE PARKS
COUNTY BOUNDARY
STATE BOUNDARY
NATURAL HERITAGE ELEMENT OCCURENCES (ENDANGERED SPECIES)
PLANT SPECIES
ANIMAL SPECIES
SPECIES HABITAT
NATURAL COMMUNITY
EXISTING LOCATION ALONG NC 211
ALT. A SECTION 3 Sta. 1625+00.00 TO 1895+00.00
PRELIMINARY PLANS
SUBJECT TO CHANGE WITHOUT NOTICE
NOTE:
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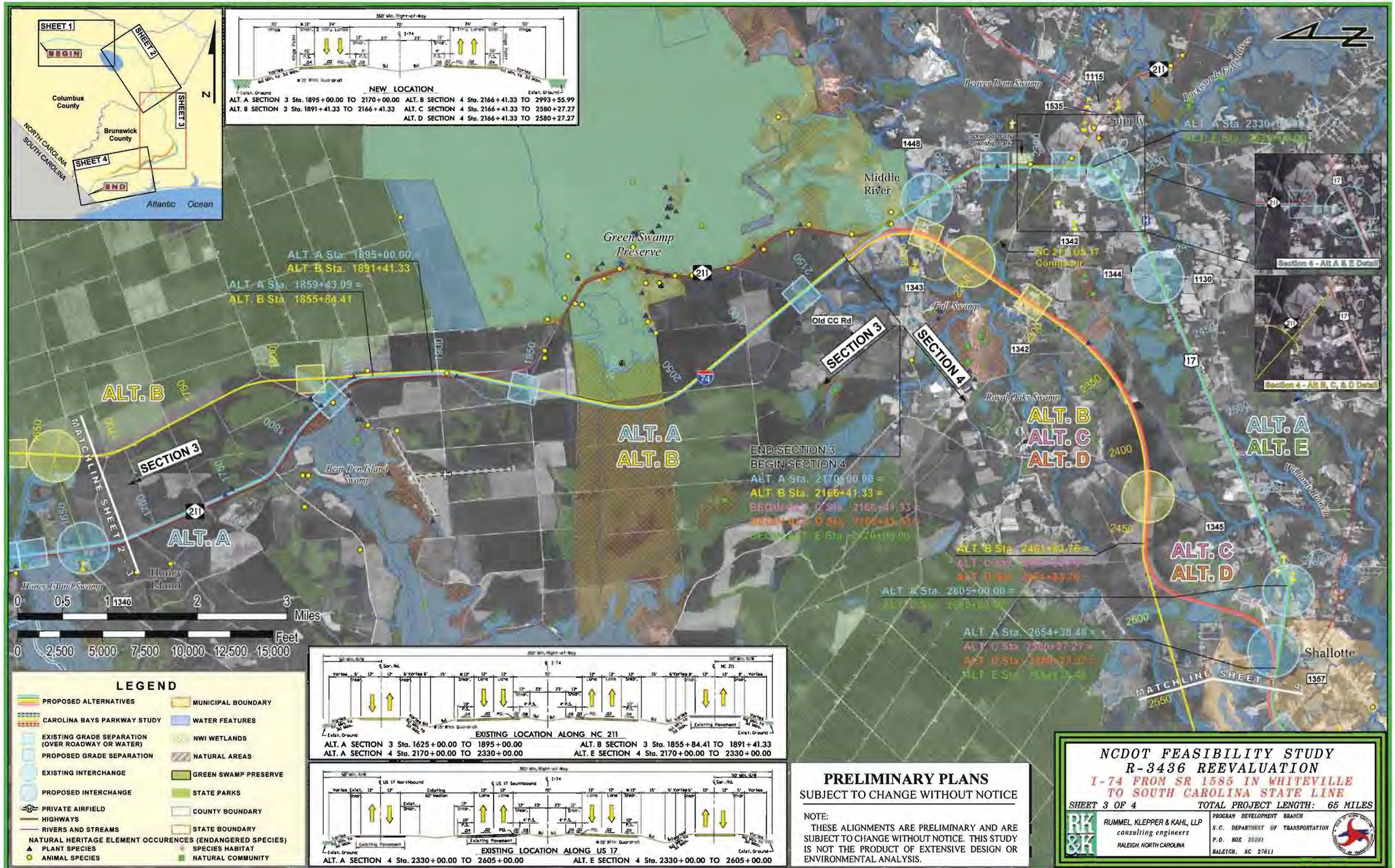
NCDOT FEASIBILITY STUDY
R-3436 REEVALUATION
I-74 FROM SR 1585 IN WHITEVILLE TO SOUTH CAROLINA STATE LINE
SHEET 2 OF 4
TOTAL PROJECT LENGTH: 65 MILES
RK&K
RUMMEL, KLEPPER & KAHL, LLP
consulting engineers
RALEIGH, NORTH CAROLINA
PROGRAM DEVELOPMENT BRANCH
N.C. DEPARTMENT OF TRANSPORTATION
P.O. BOX 25201
RALEIGH, NC 27611

SHEET 2


SHEET 1
BEGIN
SHEET 2
SHEET 3
SHEET 4
END
Columbus County
Brunswick County
NORTH CAROLINA
SOUTH CAROLINA
Atlantic Ocean
N
350' Min. Right-of-Way
NEW LOCATION
ALT. A SECTION 3 Sta. 1895+00.00 TO 2170+00.00
ALT. B SECTION 3 Sta. 1891+41.33 TO 2166+41.33
ALT. B SECTION 4 Sta. 2166+41.33 TO 2993+55.99
ALT. C SECTION 4 Sta. 2166+41.33 TO 2580+27.27
ALT. D SECTION 4 Sta. 2166+41.33 TO 2580+27.27
Green Swamp Preserve
Middle River
Beaver Dam Swamp
Lockwoods Folly River
Supply
Lockwoods Folly Township Park
NC 211 / US 17 Connector
Old CC Rd
Fall Swamp
Royal Oak's Swamp
Williams Branch
Bear Pen Island Swamp
Honey Island Swamp
Honey Island
Shallotte
ALT. A Sta. 1895+00.00 =
ALT. B Sta. 1891+41.33
ALT. A Sta. 1859+43.09 =
ALT. B Sta. 1855+84.41
ALT. A Sta. 2330+00.00 =
ALT. A Sta. 2170+00.00 =
ALT. B Sta. 2166+41.33 =
ALT. A Sta. 2605+00.00 =
ALT. A Sta. 2654+38.48 =
END SECTION 3
BEGIN SECTION 4
SECTION 3
SECTION 4
MATCHLINE SHEET 2 - 3
MATCHLINE SHEET 3 - 4
ALT. B
ALT. A
ALT. A
ALT. B
ALT. B
ALT. C
ALT. D
ALT. A
ALT. E
ALT. C
ALT. D
Section 4 - Alt A & E Detail
Section 4 - Alt B, C, & D Detail
0 0.5 1 2 3 Miles
0 2,500 5,000 7,500 10,000 12,500 15,000 Feet
LEGEND
PROPOSED ALTERNATIVES
CAROLINA BAYS PARKWAY STUDY
EXISTING GRADE SEPARATION (OVER ROADWAY OR WATER)
PROPOSED GRADE SEPARATION
EXISTING INTERCHANGE
PROPOSED INTERCHANGE
PRIVATE AIRFIELD
HIGHWAYS
RIVERS AND STREAMS
MUNICIPAL BOUNDARY
WATER FEATURES
NWI WETLANDS
NATURAL AREAS
GREEN SWAMP PRESERVE
STATE PARKS
COUNTY BOUNDARY
STATE BOUNDARY
NATURAL HERITAGE ELEMENT OCCURENCES (ENDANGERED SPECIES)
PLANT SPECIES
ANIMAL SPECIES
SPECIES HABITAT
NATURAL COMMUNITY
EXISTING LOCATION ALONG NC 211
ALT. A SECTION 3 Sta. 1625+00.00 TO 1895+00.00
ALT. B SECTION 3 Sta. 1855+84.41 TO 1891+41.33
ALT. A SECTION 4 Sta. 2170+00.00 TO 2330+00.00
ALT. E SECTION 4 Sta. 2170+00.00 TO 2330+00.00
EXISTING LOCATION ALONG US 17
ALT. A SECTION 4 Sta. 2330+00.00 TO 2605+00.00
ALT. E SECTION 4 Sta. 2330+00.00 TO 2605+00.00
PRELIMINARY PLANS
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NCDOT FEASIBILITY STUDY
R-3436 REEVALUATION
I-74 FROM SR 1585 IN WHITEVILLE TO SOUTH CAROLINA STATE LINE
SHEET 3 OF 4
TOTAL PROJECT LENGTH: 65 MILES
RUMMEL, KLEPPER & KAHL, LLP
consulting engineers
RALEIGH, NORTH CAROLINA
PROGRAM DEVELOPMENT BRANCH
N.C. DEPARTMENT OF TRANSPORTATION
P.O. BOX 25201
RALEIGH, NC 27611
SHEET 3

PRELIMINARY PLANS

SUBJECT TO CHANGE WITHOUT NOTICE

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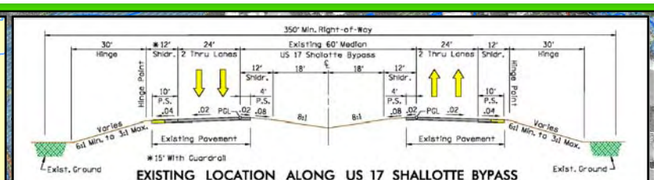


EXISTING LOCATION ALONG US 17 SHALLOTTE BYPASS

ALT. A SECTION 4 Sta. 2605+00.00 TO 2825+00.00 ALT. D SECTION 4 Sta. 2580+27.27 TO 2750+88.78
ALT. C SECTION 4 Sta. 2580+27.27 TO 2678+59.60 ALT. E SECTION 4 Sta. 2605+00.00 TO 2752+70.82

NEW LOCATION

ALT. B SECTION 4 Sta. 2166+41.33 TO 2987+22.82 ALT. E SECTION 4 Sta. 2752+70.82 TO 3102+84.40
ALT. C SECTION 4 Sta. 2678+59.60 TO 3028+73.18 ALT. B SECTION 5 Sta. 2993+55.99 TO 3218+79.20

ALT. A Sta. 2654+38.48 =
ALT. C Sta. 2580+27.27 =
ALT. D Sta. 2580+27.27 =
ALT. E Sta. 2654+38.48

ALT. B Sta. 2882+50.92 =
ALT. C Sta. 2917+68.11 =
ALT. E Sta. 2991+79.33

ALT. A Sta. 2752+70.82 =
ALT. C Sta. 2678+59.60 =
ALT. D Sta. 2678+59.60 =
ALT. E Sta. 2752+70.82

END SECTION 4
BEGIN SECTION 5
ALT. B Sta. 2993+55.99 =
END ALT. C Sta. 3028+73.18
END ALT. E Sta. 3102+84.40

END SECTION 5
BEGIN SECTION 6
ALT. A Sta. 3315+00.00 =
END ALT. B Sta. 3218+79.20

END SECTION 4
BEGIN SECTION 5
ALT. A Sta. 3106+13.12 =
END ALT. D Sta. 3032+01.90

END SECTION 6
ALT. A Sta. 3453+45.95

CAROLINA BAYS PARKWAY STUDY
(TO BE EXTENDED TO NC 904)

SECTION 4
SECTION 5
SECTION 6

ALT. A
ALT. B
ALT. C
ALT. D
ALT. E

END STUDY

Hickmans Crossing
Carolina Shores
Calabash
Shallotte
Shallotte Township Park
Shallotte River
Sandy Branch Sand Ridge and Bay Complex
Watchline Sheet 3 - 4

LEGEND

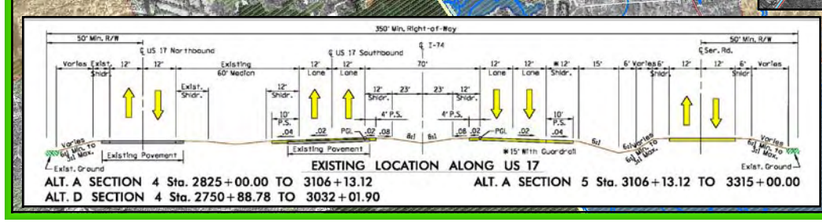
- PROPOSED ALTERNATIVES
- CAROLINA BAYS PARKWAY STUDY
- EXISTING GRADE SEPARATION (OVER ROADWAY OR WATER)
- PROPOSED GRADE SEPARATION
- EXISTING INTERCHANGE
- PROPOSED INTERCHANGE
- PRIVATE AIRFIELD
- HIGHWAYS
- RIVERS AND STREAMS
- MUNICIPAL BOUNDARY
- WATER FEATURES
- NWI WETLANDS
- NATURAL AREAS
- GREEN SWAMP PRESERVE
- STATE PARKS
- COUNTY BOUNDARY
- STATE BOUNDARY

NATURAL HERITAGE ELEMENT OCCURENCES (ENDANGERED SPECIES)

- PLANT SPECIES
- ANIMAL SPECIES
- SPECIES HABITAT
- NATURAL COMMUNITY

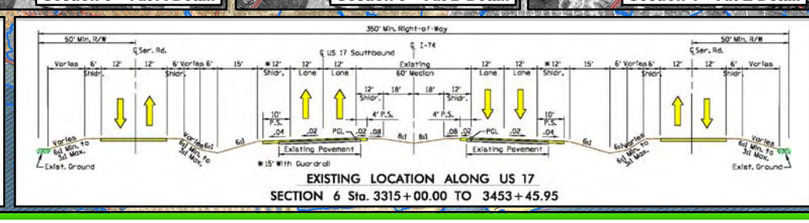
0 0.5 1 2 3 Miles

0 2,500 5,000 7,500 10,000 12,500 15,000 Feet



EXISTING LOCATION ALONG US 17

ALT. A SECTION 4 Sta. 2825+00.00 TO 3106+13.12 ALT. A SECTION 5 Sta. 3106+13.12 TO 3315+00.00
ALT. D SECTION 4 Sta. 2750+88.78 TO 3032+01.90



EXISTING LOCATION ALONG US 17

SECTION 6 Sta. 3315+00.00 TO 3453+45.95

NCDOT FEASIBILITY STUDY
R-3436 REEVALUATION
I-74 FROM SR 1585 IN WHITEVILLE
TO SOUTH CAROLINA STATE LINE

SHEET 4 OF 4 TOTAL PROJECT LENGTH: 65 MILES

RK&K
RUMMEL, KLEPPER & KAHL, LLP
consulting engineers
RALEIGH, NORTH CAROLINA

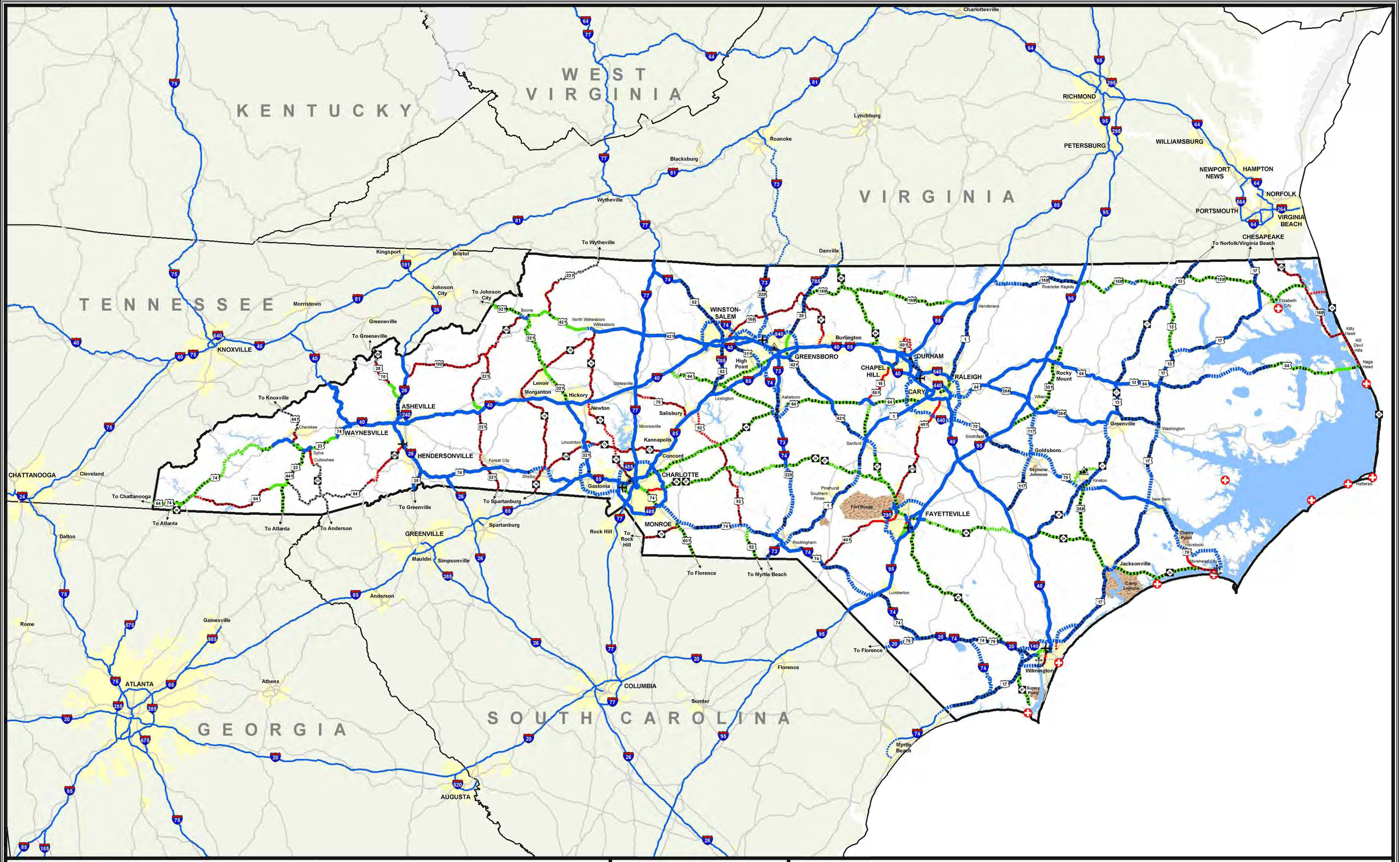
PROGRAM DEVELOPMENT BRANCH
N.C. DEPARTMENT OF TRANSPORTATION
P.O. BOX 25201
RALEIGH, NC 27611

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

SHEET 4

APPENDIX A

Strategic Highway Corridors - Vision Plan for NC
Strategic Highway Corridors - Vision Plan for Southeastern NC



Strategic Highway Corridors

north carolina department of transportation

Vision Plan

Adopted by The North Carolina Board of Transportation

Plan Date: September 2, 2004

N
W E
S

0 5 10 20 30 40 50 Miles

Prepared By:
The North Carolina Department of Transportation
Transportation Planning Branch

Base Map Date: March 29, 2004

Legend

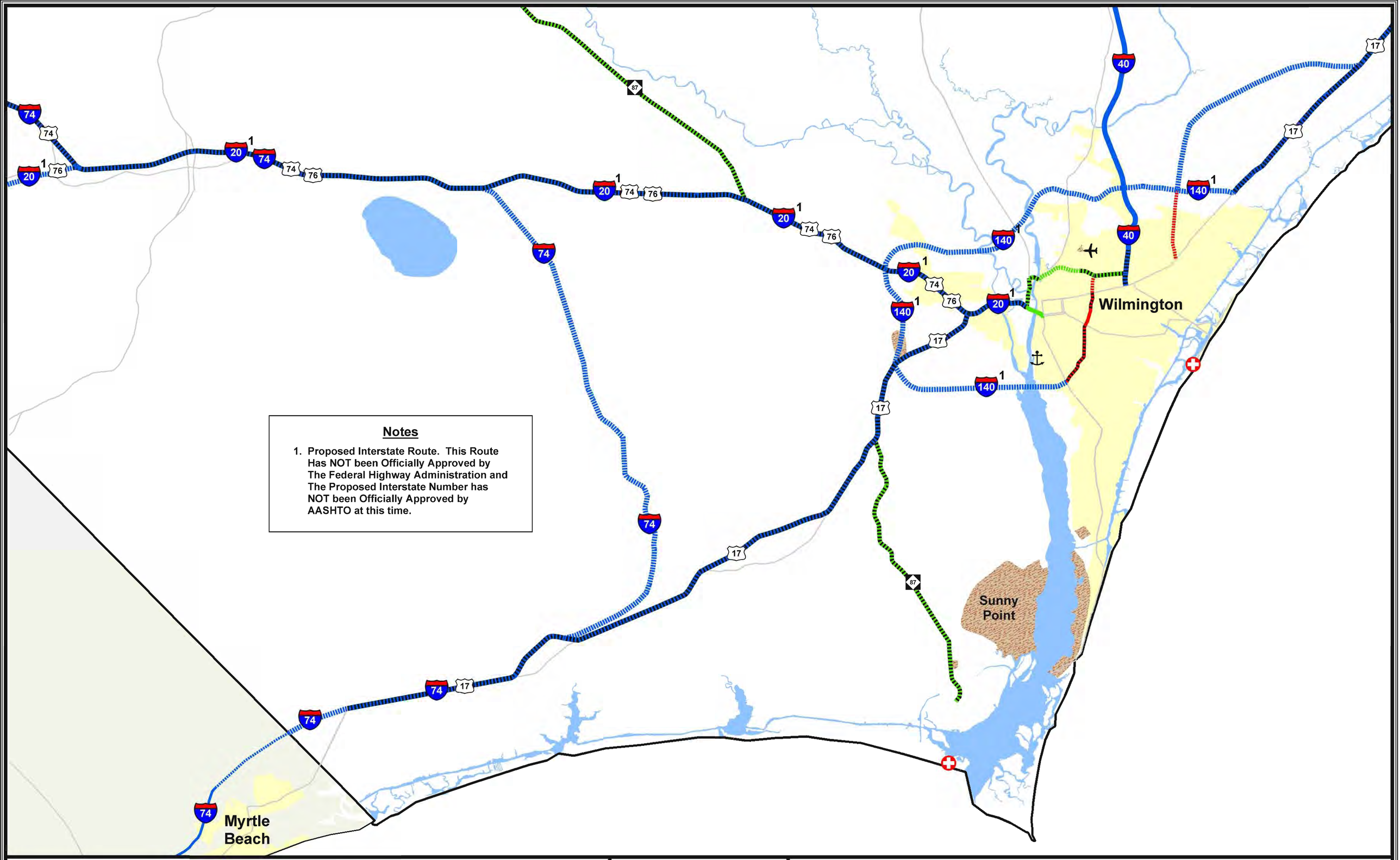
Freeways
- Existing
- Needs Upgrade
- Recommended

Expressways
- Existing
- Needs Upgrade
- Recommended

Boulevards
- Existing
- Needs Upgrade
- Recommended

Thoroughfares
- Existing
- Needs Upgrade
- Recommended

- US/Other Route
- State Port
- Major Airport
- Intermodal Connector
- Coast Guard Station
- Major Military Base
- Urban Area
- Water Features



Strategic Highway Corridors

north carolina department of transportation

Vision Plan Southeastern NC

Adopted by The North Carolina Board of Transportation

Plan Date: September 2, 2004

N W E S

Miles
0 0.5 1 2 3 4 5

Prepared By:
The North Carolina Department of Transportation
Transportation Planning Branch

Base Map Date: March 29, 2004

Legend

Freeways
- Existing
- Needs Upgrade
- Recommended

Expressways
- Existing
- Needs Upgrade
- Recommended

Boulevards
- Existing
- Needs Upgrade
- Recommended

Thoroughfares
- Existing
- Needs Upgrade
- Recommended

- US/Other Route
- State Port
- Major Airport
- Intermodal Connector
- Coast Guard Station
- Major Military Base
- Urban Area
- Water Features

APPENDIX B

Letters from Interested Parties

The Nature Conservancy®
NORTH CAROLINA CHAPTER
Saving the Last Great Places

Southeast Coastal Plain Stewardship Office
Building 4, Unit E
2725 Old Wrightsboro Road
Wilmington, North Carolina 28405

TEL 910 762-6277
FAX 910 762-5441

International Headquarters
Arlington, Virginia
TEL 703 841-5300

RECEIVED
MAY 13 2004
RUMMEL, KLEPPER & KAHL
RALEIGH, NC

May 14, 2004

Rummel, Klepper & Kahl, LLP
Attn: Keith Skinner, P.E.
5800 Faringdon Place, Suite 105
Raleigh, NC 27609-8382

Re: Feasibility Study of I-74 (T.I.P. R-3436 Revised)

Mr. Skinner:

Thank you for your March 24, 2004 letter inviting The Nature Conservancy's comments on the proposed corridor for Interstate 74. Recall that The Nature Conservancy owns 15,550 acres in Brunswick County commonly referred to as the Green Swamp Nature Preserve. Presently, N.C. Highway 211 bisects this property. The North Carolina Natural Heritage Program has categorized the Green Swamp as a "nationally significant" natural area, and the preserve is registered with the National Park Service as a "National Natural Landmark".

High quality longleaf pine savanna- particularly areas alongside N.C. Highway 211- could be significantly impacted by the proposed roadway. Pine savannas are notable for their diversity of plant species. These communities naturally experienced frequent, low intensity surface fires. Without question, frequent fire is essential for maintaining the high species diversity and vegetational structure. In the absence of fire, the canopy becomes denser, shrubs invade and diversity declines.

The complexities and liabilities associated with controlled burns adjacent to an interstate highway would present serious restraints on our ability to manage these savannas with fire. Consequently, the habitats for both federally endangered species found in the Green Swamp- red-cockaded woodpecker (*Picoides borealis*) and rough-leaf loosestrife (*Lysimachia asperulifolia*) -would be degraded.

As we discussed in our March 5, 2004 Raleigh meeting, NCDOT and RK&K agreed that the endangered species habitat, along with basic alignment issues, were compelling reasons to align the roadway along the western boundary of TNC's Green Swamp preserve.

As RK&K and NCDOT proceed with the amendment to Feasibility Study R-3436, The Nature Conservancy asks that you consider the irreplaceable natural communities of the Green Swamp. I am enclosing the following items for your review.

recycled paper

- NC Natural Heritage Program Inventory Report (1995)
- TNC letter to Governor Easley and NCDOT Secretary Lyndo Tippett (August 10, 2003)
- USFWS letter to Governor Easley and NCDOT Secretary Lyndo Tippett (December 18, 2003)
- Green Swamp "Burn Units" map and key (2003)
- National Park Service "Natural Landmark Brief" (March 1974)
- Red-cockaded woodpecker study "Population Size & Nest Locations" (1995) and survey sheets (1996).
- Rough-leaf loosestrife survey notes (1992-99) and "Population Monitoring Reports" (2001, 2002, 2003)

Last month I forwarded a GIS file of The Nature Conservancy's ownership boundary to Brian Peeler with your office.

The Nature Conservancy would like to meet again with RK&K and NCDOT this summer as possible routes emerge. In the next month, Frank Vick or I will contact you to schedule that meeting.

Again, thank you for your consideration of this material and your assistance. If you have any further questions or need more information, please do not hesitate to contact me.

Sincerely,

Dan Bell
Project Director

cc:
Nicole Hackler, NCDOT Feasibility Studies Unit
Frank Vick, PBS&J

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

May 20, 2004

Mr. B. Keith Skinner, P. E.
Rummel, Klepper, & Kahl, LLP
5800 Faringdon Place
Suite 105
Raleigh, North Carolina 27609-3960

SUBJECT: **Feasibility Study of I-74 (T. I. P. R-3436 Revised) from just west of US 701 in Whiteville to the South Carolina State Line, Columbus and Brunswick Counties**

Dear Mr. Skinner:

Thank you for the opportunity to provide comments on this feasibility study. Division 6 staff have conducted a review of the segment within Columbus County and offer the following comments for your further consideration:

District Engineer and Resident Engineer Comments

The District Engineer along with the Resident Engineer offers the following comments:

1. Please note that interchanges should be constructed at SR 1001, SR 1735, and SR 1740. SR 1735 is the main access road to the Town of Lake Waccamaw and is the preferred route for local residents. In addition to providing access to existing industrial facilities, this route serves as the primary access to the Boy's and Girl's Home of North Carolina and their Exhibition Center. Good access to this center is of great importance since the facility frequently hosts regional and statewide events. The ADT on SR 1735 is 2,400 vpd south of US 74-76 and 2,200 vpd north of US 74-76. East Columbus High School is located at the SR 1740 intersection. Additional right-of-way may have to be acquired.

2. There is the possibility that the signalized NC 211 intersection with US 74-76 near the Town of Bolton will become an interchange in the future.

3. Very little economic development exists between the Town of Bolton and the Brunswick County line since it is passing through the environmentally sensitive Green Swamp. Construction costs in this area will be high.

P. O. BOX 1150, FAYETTEVILLE, NC 28301 - PHONE (910) 486-1493 - FAX (910) 486-1959

TRAFFIC ENGINEERING COMMENTS

The Division 6 Traffic Engineer offers the following comments:

1. The current proposed alignment is to route I-74 down NC 211 from Bolton toward Supply. This alignment would have to overcome some significant environmental problems. The only benefit to this location would be to accelerate growth in the coastal areas between Ocean Isle northward toward Southport. The coastal area will develop without interstate connection.
2. A route that would encourage more development in Columbus County would be to route I-74 between the Whiteville, Chadbourn, and Tabor City part of the county. The I-74 route could align with US 17 near Shallotte. This proposal would benefit the coastal areas, as well as, inland Columbus, Bladen, and Robeson Counties.
3. If the project is built in sections, we recommend that it be built to full control access standards. Multilane sections of roadways in Robeson, Columbus, and Bladen Counties have experienced severe accident problems at locations with at-grade intersection treatments.

ENVIRONMENTAL COMMENTS

The following comments address the current US 74-76 roadway shown in the study.

1. Some of the drainage ditches may be considered jurisdictional wetlands. Buffer Regulations should be reviewed for this project. Buffer rules are currently not in effect but will be an issue eventually.
2. The roadway cuts across several expansive wetlands, the Green Swamp being one of them. There are also several bays that have been eliminated or segmented. Re-establishing these bays may be a valuable form of onsite mitigation, along with the possibility of using some of the properties along the corridor. The proposed corridor will also use prior converted land that has already been cleared and manipulated.
3. Spill containment will most likely be required on the project. Critter crossing will also be an issue. There is currently little or no north/south access for wildlife.

The following comments address the portion that deviates from the existing US 74/76 roadway from the Town of Bolton area going down to the South Carolina Line. NC 211 is a great alignment for this project. Though the road is proposed through Green Swamp, very little of the project will impact jurisdictional wetlands.

1. The multi-laned highway should utilize a median that is wide enough to accommodate the existing drainage along NC 211. The drainage ditches are jurisdictional.
2. Being that the majority of the property situated along NC 211 is in Pine Plantation Ownership, there will be some concern with Red-Cockaded Woodpecker colonies along the route, besides numerous threatened species.
3. There are two 4-f properties along NC 211: the first is the Green Swamp Preserve, the second is the Brunswick County Recreational Park.
4. All crossings of High Quality Wetlands must be bridged.
5. Critter Crossings must be incorporated into the bridge designs.

6. The project will have wetland impacts, but, the Department does have a unique opportunity to offset the impacts by initiating a mitigation strategy that expands the reaches of the Green Swamp Preserve. For years the Green Swamp Preserve has been attempting to restore and expand as much of the Green Swamp as possible, while several of the large timber companies have been attempting to sell off parcels.
7. Green Swamp was designated a National Landmark by the USFWS in 1974.
8. There is concern with the availability of fill material for the project. Under the current regulatory constraints upon borrow sites, i.e. 400 foot buffer from jurisdictional streams and wetlands unless proven to be a non-impact, borrow sites will be difficult to locate.
9. A huge 100 acre 300 foot tall landfill was planned for construction in the Green Swamp just off of NC 211. A private corporation was petitioning the State of North Carolina to place this landfill in the Green Swamp near Clewis Corner which is located near the Columbus and Brunswick County line. Local citizens are opposed to this landfill and hope to preserve the Green Swamp.

Division 6 has one comment on the Carolina Bays Parkway Extension from South Carolina. In reviewing the proposed alignments from the South Carolina DOT study for the Carolina Bays Parkway Extension, alignment F is preferred. This alignment will improve upon existing roadways that currently funnel traffic towards the Carolina Bays Parkway.

If you have any additional questions, please contact me at (910) 486-1493.

Very truly yours,

Tracey Pittman, P. E.
Division 6 Construction Engineer

BY: William Russell Marsh, P. E.
Whiteville Resident Engineer

E: Mr. Robert Crumpler, P. E.
Mr. Rusty Marsh, P. E.
Mr. Jim Rerko, P. W. S.
Mr. Ray Goff

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

May 27, 2004

TIP Project: R-3436
County: Columbus / Brunswick
Description: I-74 from West of US 701 in Whiteville, Columbus County, to the South Carolina State Line, Brunswick County

MEMORANDUM

TO: Derrick W. Lewis, P.E., Feasibility Studies Unit Head
Feasibility Studies Unit, Program Development Branch
Attention: Nicole Hackler, Feasibility Studies Engineer

FROM: for Nathan K. Phillips, P.E., Plan Review Engineer Deborah K Jokisch
Congestion Management Section

SUBJECT: Feasibility Study

As requested, the Plan Review Group of the Traffic Engineering and Safety Systems Branch has collected preliminary input pertaining to the feasibility study for this project. We would like to share the following comments:

- Our Traffic Operations Group does not see any opportunities within this project to advance the Coastal Regional Strategic Deployment Plan.
- Our Traffic Safety Systems Management Unit has determined that the fatal crash rate for this section exceeds the statewide rate, but not the critical rate. The full report has been sent to the consulting engineer for this project.

If additional information is required, please feel free to contact Deborah Jokisch, Facility Upgrade Engineer, or me at (919) 250-4151.

NKP/dkj:tp

cc: M. Pate Butler, P.E.
A. L. Grandy
R. E. Mullinax, P.E.
T. M. Hopkins, P.E. (Attention: J. H. Dunlop, P.E.)
C. L. Evans (Attention: K. S. Thompson)
J. S. Bourne, P. E.
R. W. King, P.E.
B. K. Mayhew, P.E.
B. K. Skinner, P.E. (Rummel, Klepper, & Kahl)

RECEIVED
JUN 02 2004
RUMMEL, KLEPPER & KAHL
RALEIGH, NC

MAILING ADDRESS:
TRAFFIC ENGINEERING AND SAFETY SYSTEMS BRANCH
1592 MAIL SERVICE CENTER
RALEIGH, NORTH CAROLINA 27699-1592

TELEPHONE: 919-250-4151
FAX: 919-250-4195
WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
CENTURY CENTER COMPLEX BUILDING B
1020 BIRCH RIDGE DRIVE
RALEIGH, NORTH CAROLINA 27610

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PROGRESS THROUGH COOPERATION

August 11, 2004

Keith Skipper, PE
Rummel, Klepper & Kahl
5800 Farringdon Place, Ste. 105
Raleigh, North Carolina 27609-3960

RE: I-74 Feasibility Study (TIP R-3436 Revised)

Dear Keith:

On May 21, 2004 the Cape Fear Area Rural Transportation Advisory Committee agreed to support the construction of the interstate highway as outlined on the study area map. They did not have any site-specific comments.

Respectfully,

Don Eggert
Rural Transportation Planner

1480 Harbour Drive, Wilmington, NC 28401 • (910) 395-4553 • (910) 395-2684 Fax
www.capefearcog.org

TOWN OF SHALLOTTE

Post Office Box 2287 • Shallotte, North Carolina 28459
Telephone: (910) 754-4032 • Facsimile: (910) 754-2740

August 17, 2004

Rummer, Klepper & Kahl, LLP
attn: B. Keith Skinner, P.E.
5800 Faringdon Place
Suite 105
Raleigh, NC 27609-3960

Dear Mr. Skinner,

This letter is in response to your request for comments on the I-74 Feasibility Study (TIP R-3436). On behalf of the Shallotte Board of Aldermen, the Town is in favor of continuing the feasibilty study as proposed and believe that an Interstate leading into Brunswick County would be beneficial to the Town, County, and State.

Please keep us informed of further developments with this project. If you have any questions, I can be contacted at (910) 754-4032. Thank you.

Sincerely,

Gerald L. Long

Gerald L. Long
Mayor

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

D. M. CAMPBELL, JR.
P. O. BOX 39, ELIZABETHTOWN, N. C. 28337

LYNDO TIPPETT
SECRETARY

August 20, 2004

Mr. B. Keith Skinner, P.E.
Rummel, Klepper & Kahl, LLP
5800 Faringdon Place
Suite 105
Raleigh, NC 27609-3960

Dear Mr. Skinner:

Thank you for your request for comments in regards to the Feasibility Study for I-74 (TIP R-3436 Revised) from just west of US 701 in Whiteville to the South Carolina State Line in Columbus and Brunswick Counties.

Please note that I concur with the comments provided in the attached letter from Ms. Tracey Pittman, P.E., Division Construction Engineer, dated May 20, 2004. These comments were developed through the District and Resident Engineers in Columbus County, Division Traffic Engineer, and the Division Environmental Officer.

While additional concerns may arise through the development of the Feasibility Study, please be advised that all appropriate Division 6 personnel will be at your disposal.

Sincerely,

D. M. Campbell Jr. /TPC

D. M. Campbell, Jr.
Board of Transportation Member

(910) 862-8423 ext. 26 (B)
FAX (910) 862-5531
e-mail: dmcamp@bizec.rr.com

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LANNY T. WILSON
BOARD OF TRANSPORTATION MEMBER

LYNDO TIPPETT
SECRETARY

August 26, 2004

B. Keith Skinner, PE
Rummel, Klepper & Kahl, LLP
5800 Farringdon Place, Suite 105
Raleigh, NC 27609-3960

Dear Mr. Skinner:

Thank you for your letter concerning the Revised Feasibility Study of I-74, from just west of US 701 in Whiteville to the South Carolina line, Columbus and Brunswick Counties.

I have no specific comments other than I am in full support of the proposed route in Brunswick County as shown in Figure 1 of your letter. This route is the same route identified by Governor Easley's Transportation Improvement Plan in Southeastern North Carolina (May 2003).

If you have any questions, or need further information let me know.

Sincerely,

Lanny

Lanny T. Wilson

cc: H. Allen Pope, PE., Division Engineer

1442 Quadrant Circle, Wilmington, NC 28405 (910)256-8015 Fax: (910)256-6439

Town of Lake Waccamaw
ON THE SHORES OF NORTH CAROLINA'S LARGEST NATURAL LAKE

P.O. Box 145
Lake Waccamaw, North Carolina 28450
(910) 646-3700
(910) 646-3860 Fax
email lakewaccamaw1@ncez.net

Member N.C. League of Municipalities

August 26, 2004

B. Keith Skinner, P.E.
Rummel, Kepper & Kahl. LLP
5800 Faringdon Place
Suite 105
Raleigh, NC 27609-3970

Dear Mr. Skinner:

Mr. Lloyd Payne has been called up and is serving in Iraq. I am filling in as Interim during his absence.

I have received your letter dated August 10, 2004 and must apologize for taking so long to respond. Lloyd has left many irons in the fire and it takes time just to keep up. I have attended several meetings that Congressman McIntyre has conducted in reference to Interstate 74 and Interstate 20. I strongly support both of these projects.

The Interstate 74 project will provide easier access to the beaches of both North Carolina and South Carolina thus helping the tourism of both states. The Interstate will also relieve some of the seasonal traffic on our rural roads and make driving much safer in the entire area.

Everyone that I have talked with can hardly wait for the project to be completed.

If there is anything else I can do for you, please feel free to call on me.

Sincerely,

Michael Prostinak
Interim Town Manager

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Michael F. Easley
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

Lyndo Tippett
SECRETARY

September 14, 2004

Mr. B. Keith Skinner, PE
Rummel, Klepper & Kahl, LLP
5800 Faringdon Place
Raleigh, North Carolina 27609-3960

Dear Mr. Skinner:

Thank you, for the opportunity to comment on this study. I am sure there are many issues to consider for this corridor and here are some initial concerns.

First, as the corridor enters Brunswick County, there will be environmental impacts to the Green Swamp wetland area to consider. There are some minor areas along NC 211 & US 17, but the Green Swamp is the major area of concern. Good locations for interchanges are at the intersection of US 17 & NC 211, the Town of Shallotte and the intersection of NC 904 & US 17 or SR 1303 (Hickman Road) & US 17. With the corridor following SR 1303, please contact Mr. Dave Wasserman, with the Systems Planning Unit at (919) 715-5482 for information on the "Carolina Bays Corridor" project from South Carolina. Finally, there is an identified future need for a new "Rest Area/Welcome Center" at the South Carolina State line. There is an existing "Rest Area/Welcome Center" at Shallotte. Please contact Mr. Jim Parrish, Rest Area Supervisor at (919) 733-2920, for further information.

If further information is needed or if there are any questions, please call Mr. Patrick Riddle or me at (910) 251-5724.

Sincerely,

Patrick Riddle

Patrick Riddle
Division Project Manager

124 Division Drive, Wilmington, NC 28401
PHONE (910) 251-5724 FAX (910) 251-5727

Cc: H. Allen Pope, P.E.
Jackson Provost, P.E.
Joe Blair, P.E.
David Thomas, P.E.
Dan Cumbo, P.E.

124 Division Drive, Wilmington, N.C. 28401
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